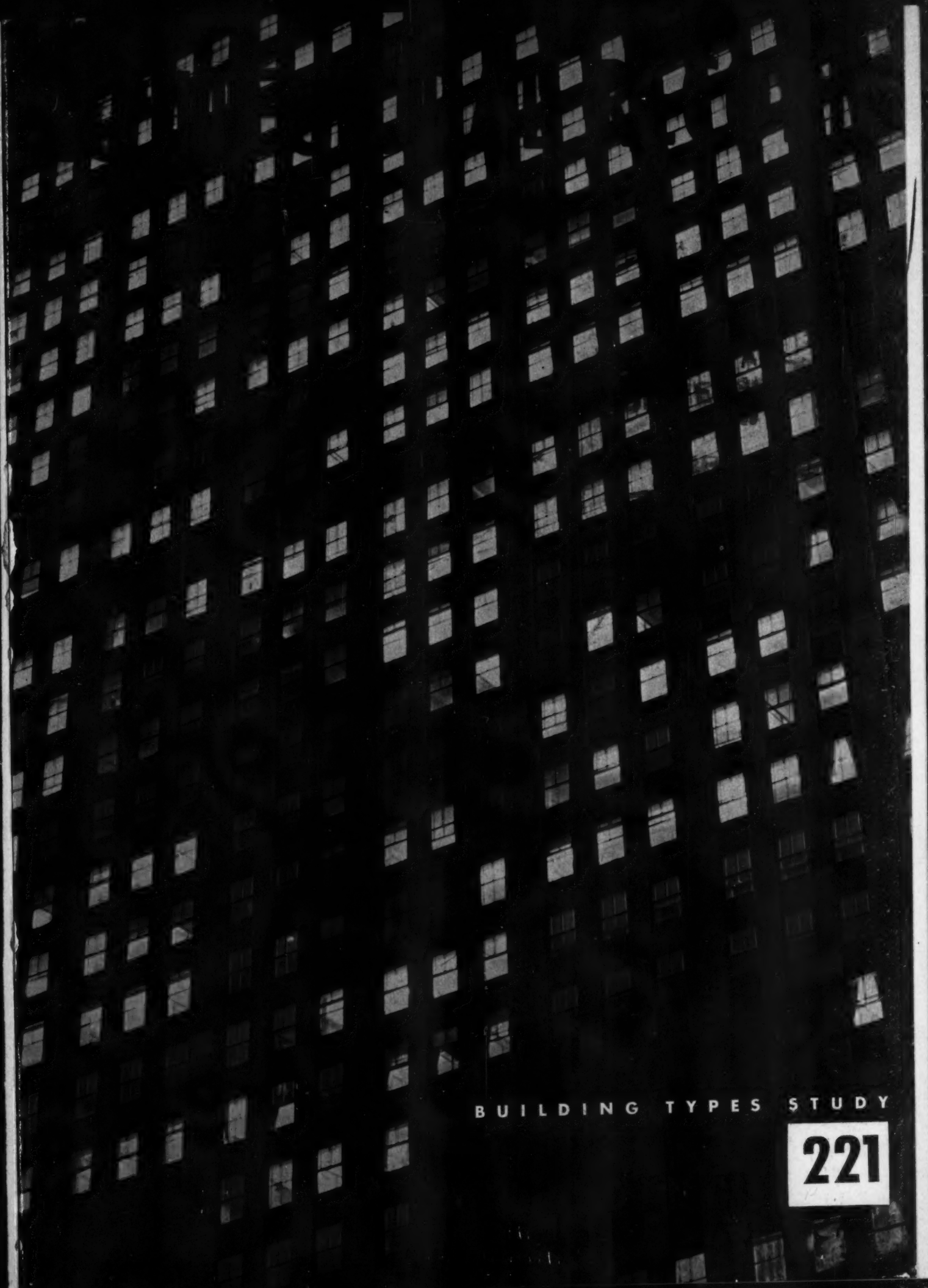
BUILDING TYPES STUDY
221

Library at Westbrook Junior College. Grinnell Ceiling Sprinklers afford inconspicuous, around-the-clock protection.

Westbrook Junior College looks to

GRINNELL SPRINKLERS

Typical dormitory room, showing regular Grinnell Quartzoid Bulb Sprinkler.

Arts and Crafts room has more than the average number of fire hazards. Here, too, Grinnell Sprinklers are constantly on guard.

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Of interest to everyone concerned with smart, modern interiors is the functional way in which the new Grinnell System was handled. Where rooms had to appear particularly attractive and uncluttered, such as the library, Grinnell flush-type Ceiling Sprinklers — extending only a scant inch below the ceiling — were used. But where emphasis could be somewhat less on looks, regular Grinnell Sprinklers served. Either type, of course, is equally effective in quenching fire — quickly, automatically — *at its source.*

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GRINNELL

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ARCHITECTURAL RECORD (Regular Edition) (Vol. 117, No. 4, April, 1955) is published monthly by F. W. Dodge Corporation, 10 Ferry Street, Concord, N. H., with editorial and executive offices at 119 W. 40th St., New York 18, N. Y. $5.50 per year; Foreign, $20.00.

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Per. Rm.

OHIO STATE UNIVERSITY
APR 21 1955
LIBRARY

The Standard Oil Company of Ohio, Cleveland, Ohio. Architects: Garfield, Harris, Robinson and Schafer

Sohio transforms garage into modern offices made permanently efficient with Mills Walls

Faced with the necessity of expansion in office space, The Standard Oil Company of Ohio converted a downtown Cleveland garage building into attractive, efficient, modern offices with interiors of Mills Movable Metal Walls. While other remodeling work on the building was in progress the interiors were fabricated at the Mills factory, permitting Sohio to take early occupancy of its new offices.

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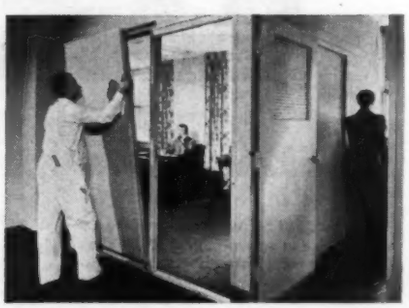

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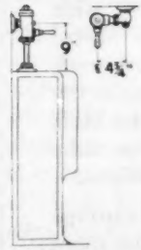

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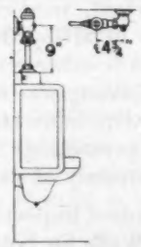

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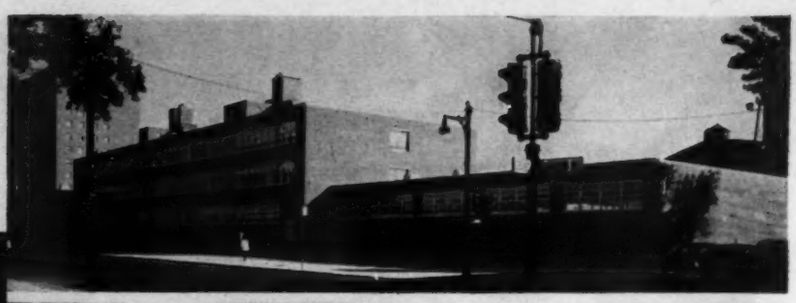
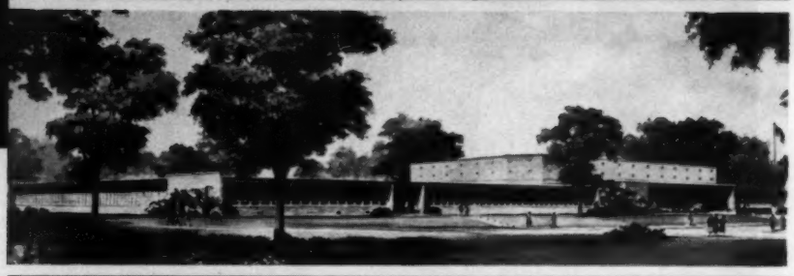
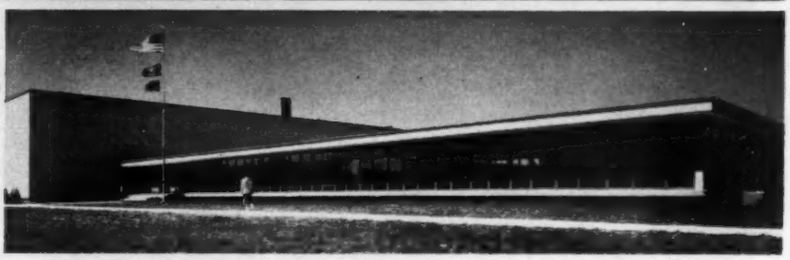


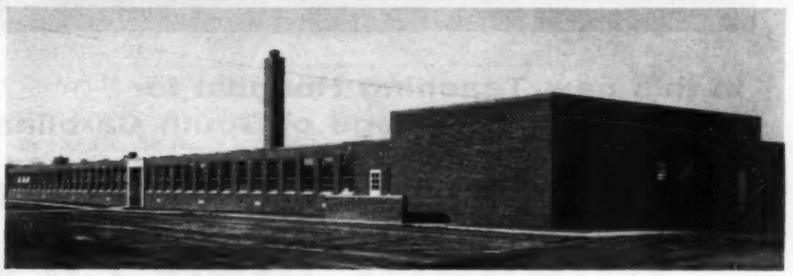
William Dick School, Philadelphia, Pa.
Max W. Bieberbach, Architect & Engineer
Miele Plumbing & Heating Co., Plumbing Contractor



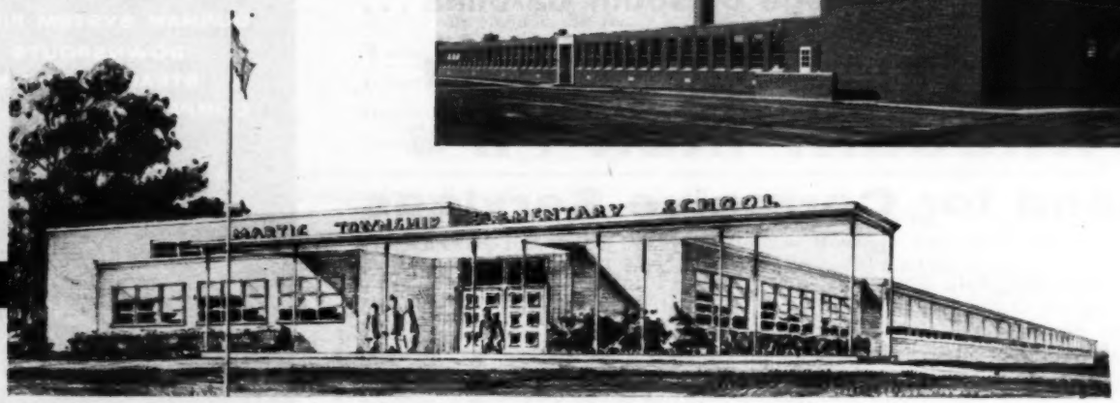
Central High School, York, Pa.
Buchart Engineering Corp., Architects & Engineers
W. K. Hood and Associates, Mechanical Engineers
SHS, Inc.
Plumbing Contractor



Norman High School, Norman, Okla.
Caudill, Rowlett, Scott & Associates
Perkins & Will, Associated Architects-Engineers
Fischer Engineering Co., Plumbing Contractor



Renwood Elementary School, Parma, Ohio
Fulton, Krinsky & DeLaMotte, Architect
Weiss Heating & Plumbing Co., Plumbing Contractor
Grinnell Co., Plumbing Wholesaler



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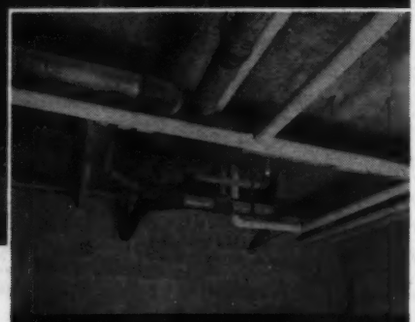

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ARCHITECTURAL RECORD

April 1955 Vol. 117 No. 4

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TABLE OF CONTENTS

The Record Reports

Perspectives	9
Contemporary Churches Take Top Honors	10, 11
School Executive Awards for "Better Design"	12
Meetings and Miscellany	15–18
Views of Current Periodicals: Student Publications	20
A Washington Report: Urban Renewal — and Clarksville. *By Ernest Mickel*	24
News From Canada. *By John Caulfield Smith*	26
Washington Topics	38
Construction Cost Index	42
Required Reading	46
Current Trends in Construction	402

Navy Postgraduate School

A group of five buildings (at present) for advanced study by Navy personnel, this school replaces the old Del Monte Hotel at Monterey, Cal. Three different structural types were used, for three different types of teaching space, yet the buildings manage to convey a single design expression. U. S. Postgraduate School, Monterey, Calif.; Skidmore, Owings & Merrill, Architects 159

Hospital for Advanced Techniques

Ochsner Foundation Hospital, New Orleans, La.; Ellerbe and Company, Architects and Engineers 172

New School for the South

West Charlotte Senior High School: Preplanning Produces Results; Graves and Toy, Architects 178

Hotel for Peru

Proposed Tourist Hotel at the Ancient City and Shrine of the Inca. Project for a Hotel at Machu Picchu, Peru. Schweikher and Elting, Architects 184

Houses that Research Built

Six architect-builder teams were commissioned by U. S. Gypsum to build six houses full of ideas. They were asked to try the new, not the old, with no strings attached, in order to test techniques and materials that normally don't have much use in operative homebuilding — certainly a happy assignment, and one that has been productive of interesting results.

Two houses for U. S. Gypsum Research Village, Barrington Woods, Ill.; O'Neil Ford and Harris Armstrong, Architects 189

COVER: Fenestration of RCA Building, Rockefeller Center, New York City; Reinhard & Hofmeister; Corbett, Harrison and MacMurray; Hood and Fouilhoux, Architects

Continued on next page ▶

ARCHITECTURAL RECORD

Continued from page 5

Building Types Study Number 221 — Office Buildings

Office Building design comes to a focus in fenestration, and so does this study. A couple of dozen buildings, more or less, are quickly analyzed as to fenestration, in each instance with notes from the architect in charge stating the problems he encountered and explaining his solution. No great theory emerges, except possibly the theory that there is no single pat solution to be stamped on the facade of every building.

Fenestration. A study prepared with the assistance of Max Abramovitz, Harrison & Abramovitz, Architects 198

United Nations Secretariat, New York City; Wallace K. Harrison, Director of Planning 204

U. S. Embassy Building, Havana, Cuba; Harrison & Abramovitz, Architects 205

Alcoa Administration Building, Davenport. Ia.; Harrison & Abramovitz, Architects 206

Alcoa Building, Pittsburgh, Pa.; Harrison & Abramovitz, Altenhof & Brown, Mitchell & Ritchey, Associated Architects 207

U. S. Rubber Company Building East, Rockefeller Center, N. Y.; Harrison & Abramovitz, Architects 208

Mellon-U. S. Steel Building, Pittsburgh, Pa.; Harrison & Abramovitz, William York Cocken, Architects 209

New Tishman Building, New York City; Carson & Lundin, Architects 210

Southern City Office Building; Carson & Lundin, Architects 211

Ford Motor Company, Dearborn, Mich.; Skidmore, Owings & Merrill, Architects 212

Connecticut General Life Insurance Company Building, Hartford, Conn.; Skidmore, Owings & Merrill, Architects 212

Esso Standard Oil Company, Baton Rouge, Louisiana; Lathrop Douglass, Architect; Carson & Lundin, Assoc. Architects 214

Esso Standard Oil Company, Bayway, N. J.; Lathrop Douglass, Architect 215

Creole Petroleum Corporation, Caracas, Venezuela; Lathrop Douglass, Architect 216

UNESCO Headquarters, Place de Fontenoy, Paris; Marcel Breuer, Bernard Zehrfuss, Architects 217

Architectural Engineering

Selecting Plastics for Building Uses. *By Albert G. H. Dietz* 225

Office Literature 232

Roundup 233

Product Reports 235

Time-Saver Standards — Thermal Insulation, 9; North American Building Stones, 14, 15 239

Index to Advertising 404

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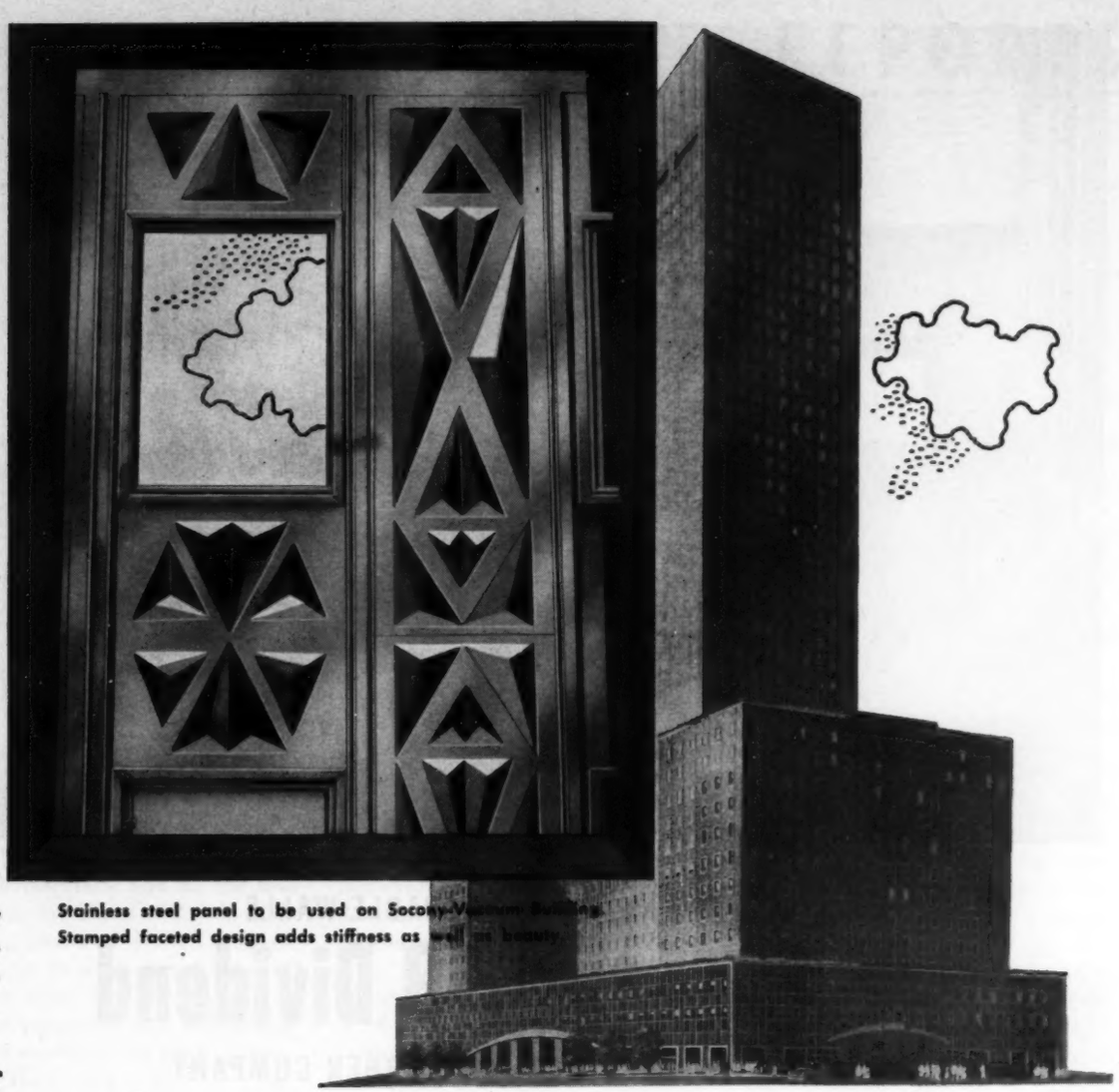
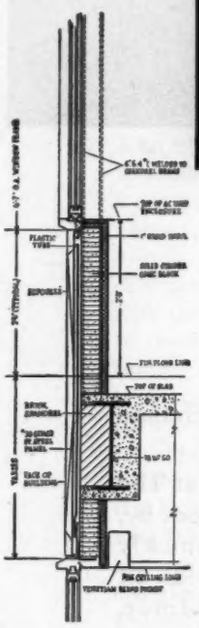


Stainless steel panel to be used on Socony-Vacuum Building. Stamped faceted design adds stiffness as well as beauty.



Detail drawing showing how stainless panels will be installed.

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PERSPECTIVES

THE TROUBLE WITH ARCHITECTS, said the paper-company-sales-executive-met-by-chance-in-a-dining-car, is that they've got to be both businessmen and artists, and most of the ones I know are so busy being businessmen that they forget all about the artist part. . . . A *profession?* Now, that's interesting, how do you figure that?

ARCHITECTURAL EDUCATION may not be another subject, and maybe everybody hasn't just been re-reading *Kindergarten Chats* the other day. John Shear's recent series on architectural education, and all the discussion about *The Architect at Mid-Century*, prompted Buford Pickens a while ago to send along a series of excerpts from the Sullivan classic with the suggestion that they might be "seen as related" to some of these things. Here they are. . . . "The true function of the architect is to initiate such buildings as shall correspond to the real needs of the people. I hereby waive aside from the inquiry the hybrid-architect: the architect who believes himself an engineer, a carpenter, a merchant, a broker, a manufacturer, a 'business man' or whatnot — and never stops to inquire if he is or is not an architect. If the merchant, broker, etc., were architects they would be called architects. They are not architects and that is why they are not called architects. Conversely, the architect who deems himself merchant, broker, etc., ceases to be architect and becomes hybrid, just to the extent that he believes it." . . . "The most important ingredients of architecture are: 1. Poetic imagination 2. Broad sympathy, humane character, and a thoroughly disciplined mind 3. A perfected technique 4. An abundant and gracious gift of expression." . . ."The great bulk of contemporary American architects, as their characters are reflected in the buildings made by them, are not good citizens, and still further must it follow in reverse from this, that the duty of our architectural educators must be to make of their pupils good citizens; and this never can be accomplished so long as they continue to utterly ignore their own land and people, their own duty toward them and the duty toward them of the young architects they are making." . . . "It is only the conventional teacher of architecture who could tell you that you are a dullard by birth, and an imbecile by predestination. You have powers of which you are not aware; every lad has, and might develop them if his parents did not ask him every five minutes how much he is 'getting.' Money grabbing will defeat any kind of education." . . . So, first learn to think, then to act. Learn to think as an architect should think, then act as an honest architect should act. The so-called average mind has vastly greater powers, immeasurably greater possibilities of development than is generally supposed. But we need teachers — we need teachers of the right sort." . . . "An art of expression, resembling all true growth, must proceed from within, it must be the gathered and stored force seeking an outlet. It is not a garment to be worn or not worn; it is inseparably a part of life, a phase of life, the tangible symbol of life. Hence an art of expression should be the earliest constructive element to enter the curriculum of the genuine education. It should grow as the body grows, and mature as the body matures. Any other scheme of education is a caricature on the human faculty and human possibility. If you seek and express the best that is in yourself, you must search out the best that is in your people; for they are your problem and you are indissolubly a part of them." . . . *Kindergarten Chats*, it will be remembered, was first published as a series in *The Interstate Architect and Builder* in 1901.

NEVER BEFORE TODAY," J. Robert Oppenheimer told the closing convocation of Columbia University's bicentennial celebration late last year, "has the integrity of the intimate, the detailed, the true art, the integrity of craftsmanship and the preservation of what is familiar, humorous and beautiful stood in more massive contrast to the vastness of life, the greatness of the globe, the otherness of people, the otherness of ways and the all-encompassing dark." The artist and the scientist, for all their increasingly divergent lives, share a special problem and a special hope, Dr. Oppenheimer said. "Both the man of science and the man of art live always at the edge of mystery, surrounded by it; both always, as the measure of their creation, have had to do with the harmonizing of what is new and what is familiar, with the balance between novelty and synthesis, with the struggle to make partial order in total chaos. They can, in their work and in their lives, help themselves, help one another and help all men. They can make the paths that connect the villages of arts and sciences with each other, and with the world at large, the multiple, varied and precious bonds of a true and world-wide community. This cannot be an easy life. We shall have a rugged time of it to keep our minds open and to keep them deep, to keep our sense of beauty and our ability to make it, and our occasional ability to see it, in places remote and strange and unfamiliar; we shall have a rugged time of it, all of us, . . . in keeping open the manifold, intricate, casual paths, to keep these flourishing in a great open windy world; but this is, as I see it, the condition of man; and in this condition we can help, because we can love one another."

Above: new officers, Church Architectural Guild — Harry B. Warren, treasurer; Anthony Ferrara, recording secretary; Harold E. Wagoner, first vice president; Edwin F. Jansson, president; H. Walter Damon, secretary; and Dr. Arland Dirlam, retiring president. Below: the Rev. Darby Betts, chairman of the Guild awards jury

CONTEMPORARY CHURCHES TAKE TOP HONORS

FOR THE FIRST TIME in the 15-year history of the Church Architectural Guild of America, all of the winners in its annual awards program were of contemporary design. Commenting on the absence of Gothic and Colonial churches from the winning group, the jury report said, "The basic principle underlying the decisions was that good church architecture is simply good architecture designed for church use."

The awards were made at the Annual Joint Conference on Church Architecture, held in Cincinnati by the Church Architectural Guild of America and the Bureau of Church Building of the National Council of Churches of Christ in the United States of America, February 23 through 25.

The jury declared in its report that it "was looking for dignity, the sense of mystery which properly belongs to a place where man meets God, forthrightness and practicality.

"All of these," the report continued, "are vital to the worship and educational functions of the congregation. The jury felt the designs submitted in 90 per cent of the cases indicated not only a willingness to take advantage of 20th century materials and techniques but an awareness of the concern of church members.

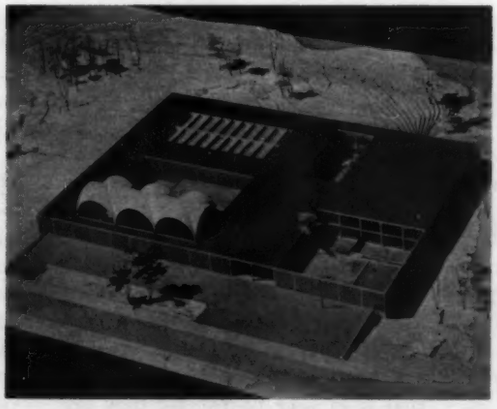
"It is not surprising, in view of this, to find flat *and* steeply pitched roofs, and adaptations to older vault forms. This freedom in the use of form characterizes all of the winners and a great majority of the other excellent designs that were submitted."

The awards were given in three categories: churches seating under 300; churches seating over 300; and hypothetical churches (viz., churches not completed or not yet in use).

Members of the jury, headed by the Rev. Darby Betts, canon precentor of St. John the Divine, included Robert L. Durham, A.I.A., Seattle; the Rev. Marvin P. Halverson, executive director, Department of Worship and the Arts, National Council of Churches, New York; Edward F. Jansson, architect and new president of the Guild, Chicago; and John Knox Shear, editor-in-chief of ARCHITECTURAL RECORD.

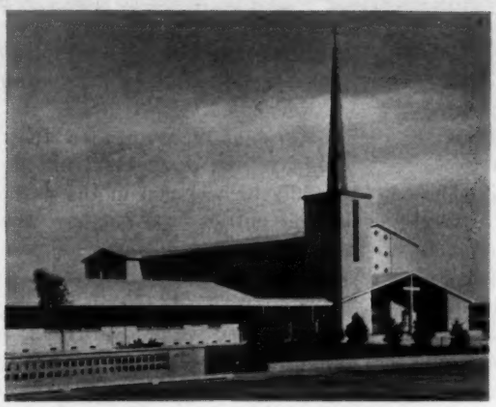
Honorable Mention (seating over 300): Chapelwood Methodist Church, Houston, Tex.; Hamilton Brown, architect

First Place (seating under 300): St. George's Church, Durham, N. H.; John A. Carter, architect



First Place (hypothetical churches): Grace Lutheran Church, Teaneck, New Jersey, Paul Schweikher, architect

Second Place (hypothetical churches): First Baptist Church, Everett, Wash.; Durham, Anderson and Freed, architects

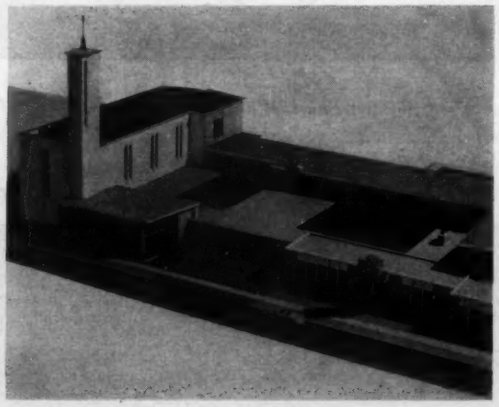


Honorable Mention (seating over 300): Emmaus First Lutheran Church, Alhambra, California; Culver Heaton, architect

Honorable Mention (seating over 300): St. Luke's Episcopal Church, San Antonio, Texas; Henry Steinbomer, architect

Second Place (seating under 300): St. Bernard Methodist Church, Chalmette, La.; Dinwiddie, Lawrence and Saunders, architects

Third Place (seating under 300): Church of the Holy Nativity, Aina Haina, Honolulu, T.H.; Law and Wilson, architects



Honorable Mention (hypothetical churches): First Lutheran Church, Glendale, Cal.; Orr, Strange and Inslee, architects

Honorable Mention (hypothetical): Chapel, University of Connecticut; Huntington & Barbee, architects

SCHOOL EXECUTIVE NAMES WINNERS IN ITS ANNUAL COMPETITION

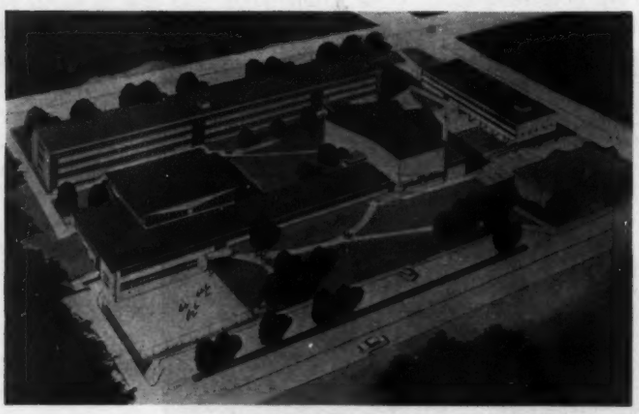
THE FOURTH ANNUAL Competition for Better School Design, sponsored by the magazine *The School Executive*, produced five top award winners chosen from a field of 107; nine honorable mention citations and two special feature citations. Of the 16 winning entries, eight were elementary schools, six were secondary schools, one was a college building and one a transportable four-classroom unit. Photographs of all the winners are shown on this and following pages.

Members of the five-man jury were R. Franklin Outcalt, of the Cleveland architectural firm Outcalt, Guenther and Associates; Walter Bogner, professor of architecture at Harvard University; Willard S. Hahn, of the architectural firm Wolf and Hahn, Allentown, Pa.; Richard L. Howland, formerly consultant on school buildings for the Connecticut State Department of Education and now of the firm Sibley, Sibley and Howland.

The jury's observation of the quality of the entries submitted, which were judged on "the excellence of the design to solve the problem," was that elementary schools on the whole exhibited better planning than did secondary schools and college buildings. It also noted that few innovations had taken place in elementary school design, and that the general trend in educational architecture was one of improvement and refinement of earlier gains. *The School Executive* commented that the quality of the designs submitted was generally higher than in the past, but that the entries "did not have the extremes, either high or low, of previous years."

Among specific design trends, the jury observed that architects were more widely utilizing the outdoors in all climates. Site selection, it noted, seemed to be rather overlooked as a part of the

(Continued on page 346)



Top Awards — Above: Passaic High School, Passaic, N. J.; Kelly & Gruzen, architects. Jury's comment: "Good utilization of small site, auditorium is well related to music and instructional facilities and well located for educational and civic uses." Right: Hollow Tree Elementary School, Darien, Conn.; Ketchum, Giná & Sharp, architects. Jury's comment: "Good uncluttered design, nice handling of classroom entrance areas where wash basin and toilets are available"

Top Award: (above) Transportable Four-Classroom School, Dearborn, Mich.; architects, Eberle M. Smith Associates. Jury's comment: "Ingenious solution which shows study and research"

Top Award: (above) West Charlotte High School, Charlotte, N. C.; architects Graves and Toy, Charlotte. Jury's comment: "Well composed campus type plan, designed on a good scale for youth"

Top Award: (below) Phillis Wheatley Elementary School, New Orleans, La.; architect Charles R. Colbert. Jury's comments: "Good use of cantilever system in which classrooms are elevated over play space, providing playgrounds on a small site"

The Invisible Enemy No. 1

UNDERMINES BUILDINGS, DESTROYS TIMBER; CAUSES COLD, FUEL LOSS, DISCOMFORT IN WINTER.

Each pound of water vapor which escapes from a building in winter robs it of 1,060 Btu's of heat!

It took 1,060 Btu's of latent heat to change that pound of water to a pound of vapor; heat lost to the outside which otherwise would have been profitably employed in heating the building; heat which cost fuel and money to produce.

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Bar this invisible enemy—VAPOR—with impenetrable metal which is impervious to its flow. Each sheet of metal must be of full width, reaching from joist to joist; and of full length, continuous, without breaks every few feet.

These metallic barriers will help expel fortuitous vapor from building spaces (for instance from rain), because where walls or roofs have at least 5 times the permeability of a "barrier", vapor will flow to the outdoors, obedient to Nature's law that vapor flows from areas of greater density to those of less. Since the vapor cannot back up into the building through the wide, long, impervious, and continuous metal, it will flow out **harmlessly** as a gas, through walls and roofs. (At 32° F. vapor has 1/205,000 the density of water; at 0° F., almost one-millionth its density.)

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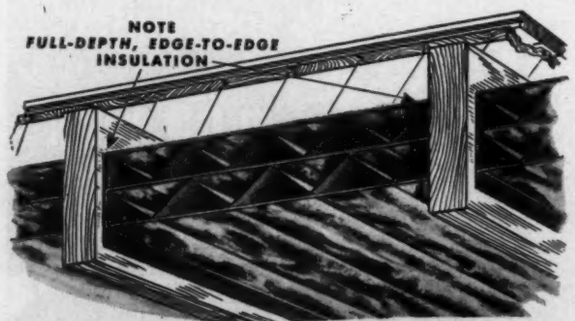

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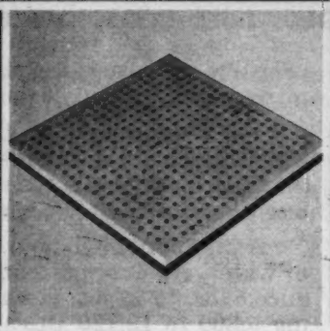
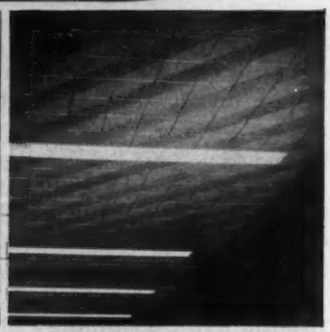


MOSAIC HANSONITE*



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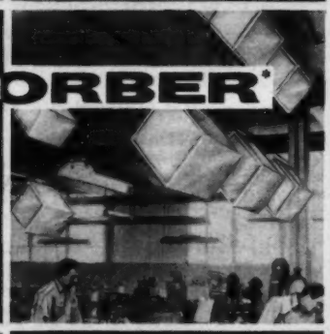
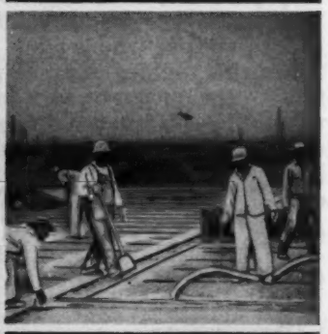
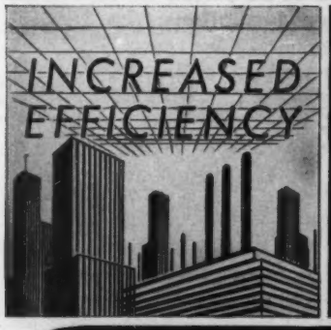


HANSOTONE* Perforated ACOUSTICAL FORMBOARD





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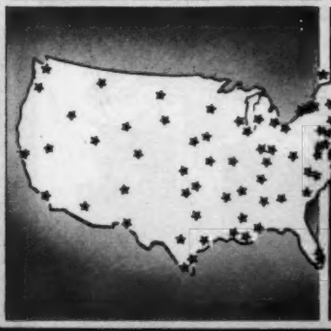

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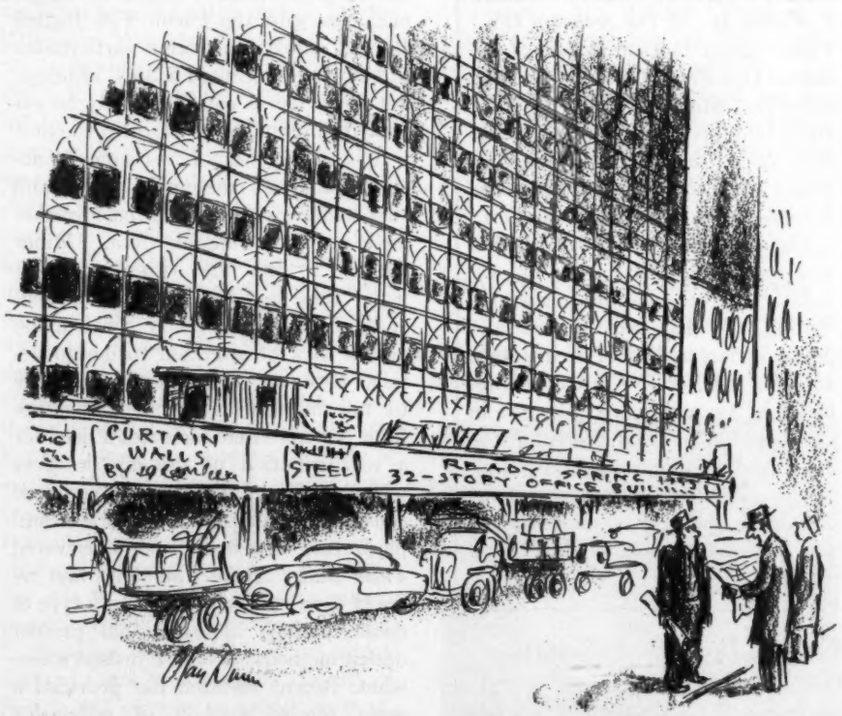
The State of Construction

THE TREND IS STILL UP. Latest figures from F. W. Dodge Corporation show all three major construction categories — residential, nonresidential and heavy engineering — setting new records, both for the month and for the year as so far reported. For details, see page 402.

Minneapolis 1955

IT'S THE HOTEL RADISSON in Minneapolis June 20–24 for the 87th annual convention of the American Institute of Architects. "Designing for the Community" will be the convention theme, and the subject of several of the seminars; others are scheduled on chapter and regional affairs and on office practice (including cost estimating and modular measure). Keynote speaker is Housing Administrator Albert M. Cole; James W. Follin, commissioner of the Urban Renewal Administration, will also be among the speakers. Richard W. E. Perrin, A.I.A., executive director of the Milwaukee Housing Authority, will moderate a seminar on "Rebuilding the City" and Norman J. Schlossman, F.A.I.A., of Chicago, a former first vice president of the Institute, will lead another, on "Architecture of Community Expansion." The pre-convention outing, on Monday, June 20, has the provocative title of "Cold Spring Cannonball Trip" — a special train will take participants through scenic lake country to Cold Spring, Minn. (which explains *that* part of the title), where they will be guests of the Cold Spring Granite Company. A visit to a granite quarry and a tour through the company's plant will present the story of granite production and fabrication in complete continuity from the rough blocks to the finished products. This and other special events are being arranged by the convention committee of the host chapters, Minneapolis, St. Paul and Duluth, under the chairmanship of G. Clair Armstrong of Minneapolis. An 11-day post-convention trip to Glacier and Jaspar National Parks, Banff and Lake Louise, is being planned by the U. S. Travel Agency to start from Minneapolis on Saturday, June 25, the day after the convention wind-up. Election of officers (George Bain Cummings, the present secretary, is so far the only candidate for the presidency), presentation of the Gold Medal, the Fine Arts and Craftsmanship Medals and the Edward C. Kemper Award, the Annual Exhibition of Outstanding American Architecture and the display of new building products and equipment will as usual be features of the convention. A.I.A. Honor Awards for Current Work, usually selected and announced at the convention, will this year be announced in advance; the jury meets this month.



— Drawn for the RECORD *by Alan Dunn*

"Very good — 14 hours flat — but they're all upside down!"

Hurrah for Conventions!

THE AMERICAN INSTITUTE OF DECORATORS will hold *its* annual conference this month and next — on a 40-day cruise aboard the T.S.S. *Olympia*, sailing from New York April 22 and returning May 31. The "program" includes Lisbon, Athens, Naples, Rome, Florence, Venice, Milan, Genoa, Nice, Paris and London. William Pahlmann is Conference Travel Committee chairman.

Solar Energy Adviser: FLW

FRANK LLOYD WRIGHT is the single architect named to the recently announced technical advisory committee for the World Symposium on Applied Solar Energy to be held in Phoenix, Ariz., November 2–5. The 14-member committee also includes Dr. Maria Telkes, research associate, New York University College of Engineering. Lewis W. Douglas, chairman of the Board, Mutual Life Insurance Company of New York and former U. S. Ambassador to Great Britain, is general chairman of the symposium, which is co-sponsored by Stanford Research Institute and the Association for Applied Solar Energy.

How About the Housing Market?

LAST YEAR THERE were prophets of doom; this year, besides Senator Fulbright and his "friendly" study of the stock market, there are some very sober bankers and real estate economists asking how long the present rising rate of home building can be maintained in the face of a declining rate of new family formation and a spiraling home mortgage indebtedness total for the nation. These questions are giving rise to some new skepticism about the propriety of Federal Housing Administration activities and particularly the liberal mortgage credit terms provided for FHA-insured mortgages in the Housing Act of 1954 — although both Housing Administrator Albert M. Cole and Federal Reserve Board Chairman William McChesney Martin express themselves as quite satisfied with the soundness of the U. S. credit structure. Dr. George Cline Smith, F. W. Dodge Corporation economist, believes the demand for new single-family homes will remain strong despite the current low level of new household formation. Addressing the annual savings and mortgage conference of the American Bankers Association in New York last month, Dr. Smith said he would expect housing demand to be sustained at well over a million new

(Continued on page 16)

nonfarm units a year, so long as the general economy of the nation remains prosperous. Acknowledging that availability of financing is an important "permissive factor" in making possible today's high level of homebuilding, Dr. Smith cited four factors which he feels will strengthen the demand for single-family owner-occupied houses even while new household formation is temporarily at a low ebb. The four factors: 1. the fact that it is frequently cheaper to own than to rent, especially when income tax deductibility of interest on mortgage and property taxes is taken into account; 2. the rapid increase in the aged population, which has the highest percentage of home ownership; 3. record numbers of children being born, resulting in more families with children, and larger numbers of children per family; 4. the shorter work-week and the growth of leisure time, making a "house-and-yard" more attractive to many. Dr. Smith said he saw no signs of a speculative boom in construction similar to that of the 1920's. "To draw a fair comparison," he said, "we can take private construction outlays, the area most subject to possible speculative dangers, deflate these outlays by using an index of construction costs, and then adjust for growth of the country by putting them on a per capita basis. If we do this, we find that today's volume of private construction is approximately three fourths as high as the 1926 peak."

Education and Practice

A NEW KIND OF LIAISON between student and practitioner may be found in the plan of the A.I.A. national Committee on School Buildings to hold one day of its April 27–29 meeting in New York City at Columbia University's School of Architecture. According to present plans, the entire School of Architecture will join invited representatives of Columbia Teachers College concerned with school building and of school boards, parent-teacher organizations, citizen school committees and teachers' organizations from New York and surrounding communities, for an all-day symposium on schools conducted by the Committee on School Buildings. Members of the Committee will show slides and present critical analyses of a number of school buildings in the context of the basic problem of how to develop good architecture for a specific philosophy of education. Discussion from the floor will be freely encouraged.

Mumford on Nowicki Wins A.I.A. Journalism Award

LEWIS MUMFORD'S four-part article, "The Life, the Teaching and the Architecture of Matthew Nowicki," which appeared in the June, July, August and September 1954 issues of ARCHITECTURAL RECORD, has been selected in the American Institute of Architects' second annual journalism competition as the best article published in a professional architectural magazine during 1954. Mr. Mumford receives a Certificate of First Award and a cash prize of $250.

In the same category, a special commendation went to the editors of *Architectural Forum* and Clarence S. Stein, Albert Mayer, Julian Whittlesey, Roger Wilcox and Lois B. Murphy for the article "Kitimat: A New City," published in *Architectural Forum*, July 1954.

In the only other of the six categories of the competition open to professional architectural magazines, J. Alex Langley of New York won the First Award for his photograph of a nightclub in Havana designed by Max Borges Jr., showing thin shell concrete vault construction, published in *Progressive Architecture* in June 1954.

First Awards also went to William T. Cullen Jr., of *The Scranton (Pa.) Times;* Lilian Jackson Braun, of the *Detroit Free Press;* Clarence W. Hall, executive editor of the *Christian Herald* (for his article "The Churches Rise Again," in McCall's, December 1954); and Thomas D. Stephens, *The Providence (R. I.) Journal-Bulletin.*

The annual journalism competition was inaugurated last year by the A.I.A. "to recognize and encourage writing . . . that will further the public understanding of architecture and the architect." An article published in ARCHITECTURAL RECORD in October 1953, "The Spirit of the New Architecture," by Pietro Belluschi, also won last year's First Award for the best article published in a professional architectural magazine.

Keeping Up with Automation

THE NEWEST ADVANCES in materials handling will be discussed at a conference to be sponsored by the American Material Handling Society at the International Amphitheatre in Chicago May 16–18, the first three days of the five-day showing of the Sixth National Materials Handling Exposition, also at the Amphitheatre. Sessions of the conference will consider how to use new systems of materials handling, one of the principal factors in automation, in today's increasingly "automatic" factories. There will be two sessions which might be of particular interest to architects: "Analyzing the Materials Handling Problem: Its Relationship to Plant Layout, Production and Production Controls"; and "Integrating the Materials Handling System with Plant Facilities" — plant layout for proper handling, problems of old and multi-story buildings, new building design for modern handling equipment. The exposition will demonstrate all types of materials handling equipment under simulated factory conditions; more than 200 companies will exhibit. Information is available from: Clapp & Poliak Inc., 341 Madison Avenue, New York 17, New York.

A.S.C.E. Meets in San Diego

THE AMERICAN SOCIETY OF CIVIL ENGINEERS, holding its national convention in San Diego February 9–11, heard a report on how "earthquake design" is meeting the test of earthquakes. Donald F. Moran and Karl V. Steinbrugge, members of the Society and structural engineers with the Pacific Fire Rating Bureau, noted that recent earthquakes in the western United States, although not as severe as can reasonably be expected to occur, have provided the first test of many structures specifically designed to resist earthquake forces, and that engineering studies of these 'quakes have provided valuable data. "Minor damage to one- and two-story buildings," they said in a paper, "can generally be traced to faulty construction and/or lack of attention to design details. However, non-structural damage to tall buildings even some distance from the epicenters indicates a need for a reëxamination of present practices wherein lateral force factors are reduced considerably for the lower stories. Simple framed structures, such as elevated water tanks, all-steel buildings and refinery type structures, suffered a type of damage which indicates that present design methods should be revised somewhat. Recent research has provided a more precise method of estimating stresses in simple structures due to actual earthquake motion."

Housing and Architects

THE ARCHITECT and the Evolution of Housing" will be the title and "Housing 1945–1955" will be the main theme of the Fourth Congress and Assembly of the Union Internationale des Architectes, to be held July 9–16 at The Hague. Developments in and the results of housing programs in the postwar period in the various countries, the problems, the methods, the part played by the government and the influence of the architect in solving the housing problem will be extensively discussed. In addition to this main topic, consideration will be given to the general problems of training architects and their social position. There will be exhibitions of housing in U.I.A. countries, of Netherlands architecture, and of solutions submitted by students and young architects in the international competition for redesigning a city district. The Congress is being organized by the Netherlands section of the U.I.A. and will be under the leadership of Prof. J. H. van den Broek, who is the author of the documentary work "Housing 1945–1955," to be published before the Congress opens. Ralph Walker, F.A.I.A., of New York, a past president of the American Institute of Architects, is a U.I.A. vice president and member of the managing committee.

Alliance in Seattle

ARCHITECTS IN SEATTLE have done more than mourn the passing of the grand tradition in architecture and its lost relationship with the allied arts. Under the leadership of the Seattle Chapter of the A.I.A., in an effort enthusiastically led by John S. Detlie during his presidency of the chapter last year, they have sponsored the formation of a city-wide organization which unites not only groups and individuals concerned with the visual arts but those concerned with music, literature, theater arts and the dance as well. Allied Arts of Seattle, which has elected Mr. Detlie as its first president, proposes a broad program. "The purpose of this organization," say the by-laws, "shall be to further the arts by: 1. Uniting the common interests of existing organizations of the arts for greater strength and effectiveness. 2. Formulating specific objectives into a vital overall program which will bring the arts to a position of prime importance in the life of the city of Seattle. 3. Speaking out on all matters which affect the arts to insure that the city of Seattle will increase in beauty as it increases in size. 4. Stimulating greater public interest in and understanding of the arts." Allied Arts offers both organization and individual memberships in the fields of architecture, city planning, crafts, education, landscape architecture and gardening, literature, museums and galleries, music, painting, sculpture, theater arts and dance, graphic arts and interior design. An Allied Arts Congress is planned to be held annually in the fall. Although organization of Allied Arts of Seattle was completed only in December, its public impact was already sufficient at the beginning of this year to evoke the comment from *The Seattle Times*' art reviewer, Kenneth Callahan, that its formation was "perhaps the most significant single event in the local art world during 1954, certainly in its potential contribution to the city's cultural future."

Honors

PIETRO BELLUSCHI, F.A.I.A., has been elected to lifetime membership in the National Institute of Arts and Letters. Mr. Belluschi, who is dean of the School of Architecture and Planning at the Massachusetts Institute of Technology, was one of 14 Americans so honored for creative achievement in art, music or literature. He was the only architect among this year's new members.

THE 1955 GOLD MEDAL of the Royal Institute of British Architects has been awarded to John Murray Easton, of the London architectural firm of Easton and Robertson. Mr. Easton, designer of many public, commercial and hospital buildings, is a past president of the Architectural Association and was vice president of the R.I.B.A. in 1945–47. He is a partner of R.I.B.A. Past President Sir Howard Robertson.

CERTIFICATES recognizing their exceptional skill as craftsmen were presented by the West Virginia Chapter of the A.I.A. at a recent dinner meeting to Sherel A. Waldo, electrical and refrigeration mechanic; Pete Zando, stonemason; and Vaid O. Lee, plaster. Middle Atlantic Regional Director Marcellus Wright Jr. of Richmond made the presentations.

Which Issue Was That In?

THE ARCHITECTURAL INDEX for 1954, just published, is the latest edition of a very useful little booklet which has been coming out annually since 1950. It provides, in 39 pages, a composite index to the 1954 issues of seven publications — *Arts and Architecture*, *Architectural Forum*, ARCHITECTURAL RECORD, *The Bulletin of the American Institute of Architects*, *House & Home*, *Interiors*, and *Progressive Architecture*. Articles are indexed by building or subject and cross-indexed by architect or author. Compiled and edited by Ervin J. Bell, himself an architect, the *Index* is available at four dollars a copy from The Architectural Index, 5532 South Kenwood Avenue, Chicago 37, Illinois.

Correction

The RECORD regrets the errors in the caption accompanying the photograph of the Trinity University dormitory on page 153 of the January issue. Trinity is in San Antonio, Tex. The architectural credit should have read: Bartlett Cocke and O'Neil Ford, Associated Architects; William Wilson Wurster, Consultant. Cost of the dormitory — exclusive of architects' and engineer's fees, site improvement and landscaping — was $401,880.

After 45 Years, a New Address

THE RELENTLESS NEW YORK CYCLE of building to tear down to build again (etc.) which has caught up with the Tilden Building at the southwest corner of Fortieth Street and Avenue of the Americas has forced Julian Clarence Levi, at 80, to abandon the offices he occupied for 45 years. There will be no duplicating the setting he and his late partner, Alfredo Taylor, created — the chestnut paneling, the leaded glass windows, the hooded cast iron fireplace, the tiny entry that led from a workaday New York office corridor to the special world of the architect. But Mr. Levi has taken a small office at 11 West Forty-second Street; and — like the veritable ambassador he has been these many years for American architects — leaves next month for another summer in Europe.

More news on page 18)

The night after accepting Wisconsin's handsome apology, Mr. Wright seemed thoroughly at home at convention of Wisconsin Architects' Association in Milwaukee, where he addressed dinner meeting. At left, he is addressing Association Secretary Fritz von Grossmann and President Julius Sandstedt

WISCONSIN MAKES PEACE WITH WRIGHT

FRANK LLOYD WRIGHT will not abandon his native state after all. Following a testimonial dinner in Madison at which he heard glowing accolades of his life and work from an array of distinguished Wisconsin citizens headed by the Governor himself, not to mention a special tribute read by American Institute of Architects Past President Ralph Walker and innumerable messages of esteem from admirers across the country, Mr. Wright decided he had been mistaken when he interpreted a Wisconsin court decision that for tax purposes Taliesin is a business, not an educational institution, as an indication the state did not appreciate his work. The testimonial included presentation to Mr. Wright of a check for $10,000, the sum of contributions from 15 states besides Wisconsin, to help him pay his taxes. There was also a suggestion, loudly cheered by the nearly 400 diners, that a special act of the Legislature be passed to declare Taliesin tax-exempt.

"What should I say, overwhelmed as I am by the beauty of this testimonial, the finest I have ever received?" asked Mr. Wright. "I never would have known the fine esteem of my fellow citizens, if it had not been for the adverse tax decision . . ."

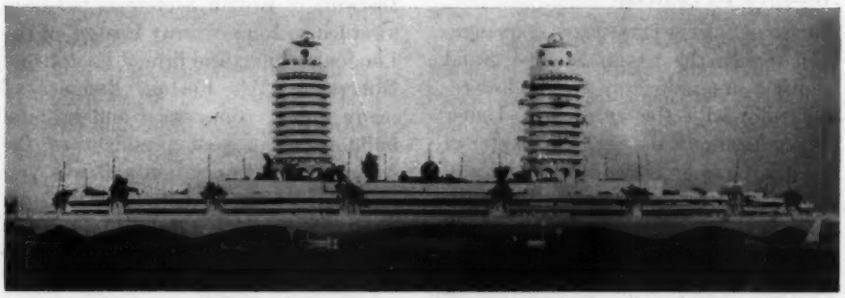
Mr. Wright went on to attack "equalitarianism" and to urge a democracy based on the supremacy of talent and ability. He said the phrase in the Constitution about all men being free and equal was "probably a clerical error" and that the founders probably intended to say that all men were equal before the law and had freedom for self-improvement.

In the major speech of the occasion, Mr. Walker hailed Mr. Wright as "a true individual" of courage and integrity "in a world which more and more demands anonymity."

"Probably the most remarkable thing about Frank Lloyd Wright," said Mr. Walker, "has been the amazing fertility of his mind." And each design, he added, seems to stand as "a symbol of what the will to create may bring forth for the happiness of man.

"It is this symbol of life, of the architect as the creator, of a man who not only believes he can mold his civilization, but who actually tries to do it, of a man who refuses to abdicate to the ignorant mores of the 'group spirit,' and of 'collective thinking,' and of 'integration,' all modern terms denoting submission in a fear for security, that we admire in Wright."

Other speakers included Governor Kohler ("He is as much a part of Wisconsin as the beautiful Wisconsin River which winds by Spring Green"); Walter K. Johnson, planning director of the city of Milwaukee, representing Mayor Forster; Emeritus Dean George Sellery of the University of Wisconsin; Mrs. Iovanna Wright Peiper, daughter of Mr. Wright, who read messages from persons unable to attend the dinner; Cary Caraway, a former Wright apprentice now with the University of Illinois (who presented the $10,000 check); and Mrs. Herbert Jacobs, who told about living in the two houses designed for her family by Mr. Wright ("I don't know anything more exciting than seeing a Wright building grow, unless it is to watch your own children and family begin to grow in a "Wright house"). Master of ceremonies was William J. Evjue, editor and publisher Madison's *The Capitol Times*.



Model of Mr. Wright's Monona Terrace Plan for a civic center for Madison, approved last fall by voters and now considered fairly certain to be executed, was exhibited at dinner. Model photo below shows "minimum plan" (estimated cost, $4 million) with 3750-seat auditorium in center, a little theater, an art gallery, space for union railroad station, parking for 1500 cars. Above: maximum plan (estimated cost, $17 million); circular towers could be added, for another $1.5 million, as "moneymakers," Mr. Wright says

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ONE QUARTER SCALE is published bi-annually by the School of Fine Arts, University of Cincinnati. This 26-page issue includes articles on the work of Nakashima and by Gyorgy Kepes on "Space and Vision." 11 in. by 8½ in.; letterpress; halftones; ads; 75¢

THE STUDENT AS A PUBLISHER: A SURVEY

THE INCREASING INTEREST of architectural schools in student publications may offer one way to bridge the much discussed gap between school and profession. In an effort to evaluate the extent of this interest the RECORD sent letters to 64 accredited architectural schools and schools of fine arts requesting information about their student publications.

There were 45 responses; 11 reported existing student periodicals and nearly half the others expressed interest in starting them. The major barriers mentioned were, of course, finances and time. Also expressed was a lively curiosity about the organization of existing publications.

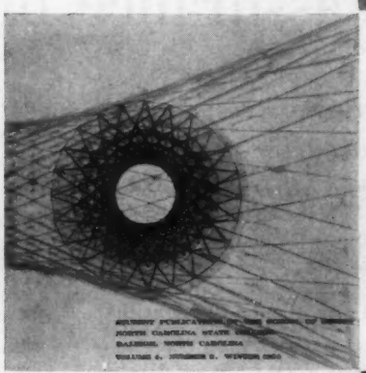
One response, from John W. Lawrence, Assistant to the Dean, School of Architecture, at Tulane University reports: "We are now trying to get such a publication started at our school and we feel the need to contact those schools which have had experience in such a venture."

Paul Weigel, head of Kansas State College Department of Architecture, wrote that "We have given this subject serious thought on various occasions but

(*Continued on page 352*)

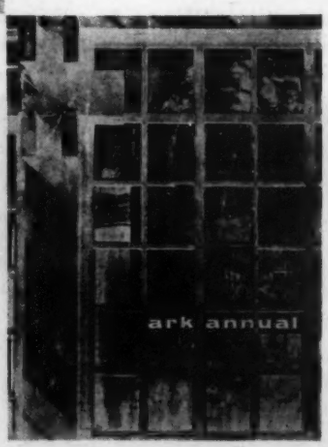
PERSPECTA is the architectural journal of Yale. This year's issue includes an article on Japan by Gropius as well as articles by Nakashima, Sybil Moholy-Nagy and Philip Johnson. 9¾ by 11¾ in.; 70-page; letterpress; halftones, 4-color illus.; ads

The STUDENT PUBLICATION of the School of Design, N. C. State College is published three times a year. This issue includes "Introduction to Thin Shells" by Atilio Gallo, as well as articles by Nervi and Fuller, and student work. 8¼ by 8¾ in.; 50 pages; offset; halftones; no ads; $2.00

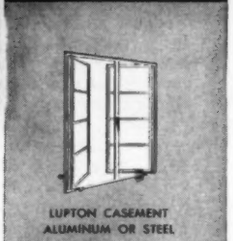


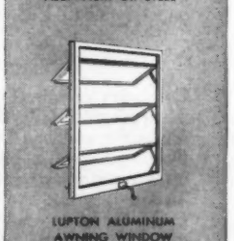
ARK ANNUAL is published yearly by the Student Chapter of the A.I.A., U. of Calif.; the 1954 issue includes an article by James Ackerman on "Public Architecture," and illustrations of student work. 7½ in. by 10 in.; 36 pages; offset; halftones

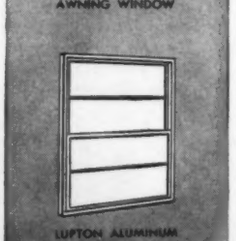
PENNSYLVANIA TRIANGLE is the joint effort of the engineering and fine arts schools of the U. of Pa. This 46-page edition shows interior views of the home of Mrs. Stanislawa Nowicki and includes a student article on elastic plastics. 8½ by 11½ in.; monthly; letterpress; halftones; ads; 25¢



General Chemical Research Laboratory, Allied Chemical and Dye Corp., Morristown, New Jersey.
Architects: Fellheimer and Wagner, New York City.
Contractor: George A. Fuller Co. New York City.
Windows: Lupton Master Aluminum Projected, some fixed and some with ventilating sash.







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Picture studies in function and

c

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Announcing TRA Remotaire

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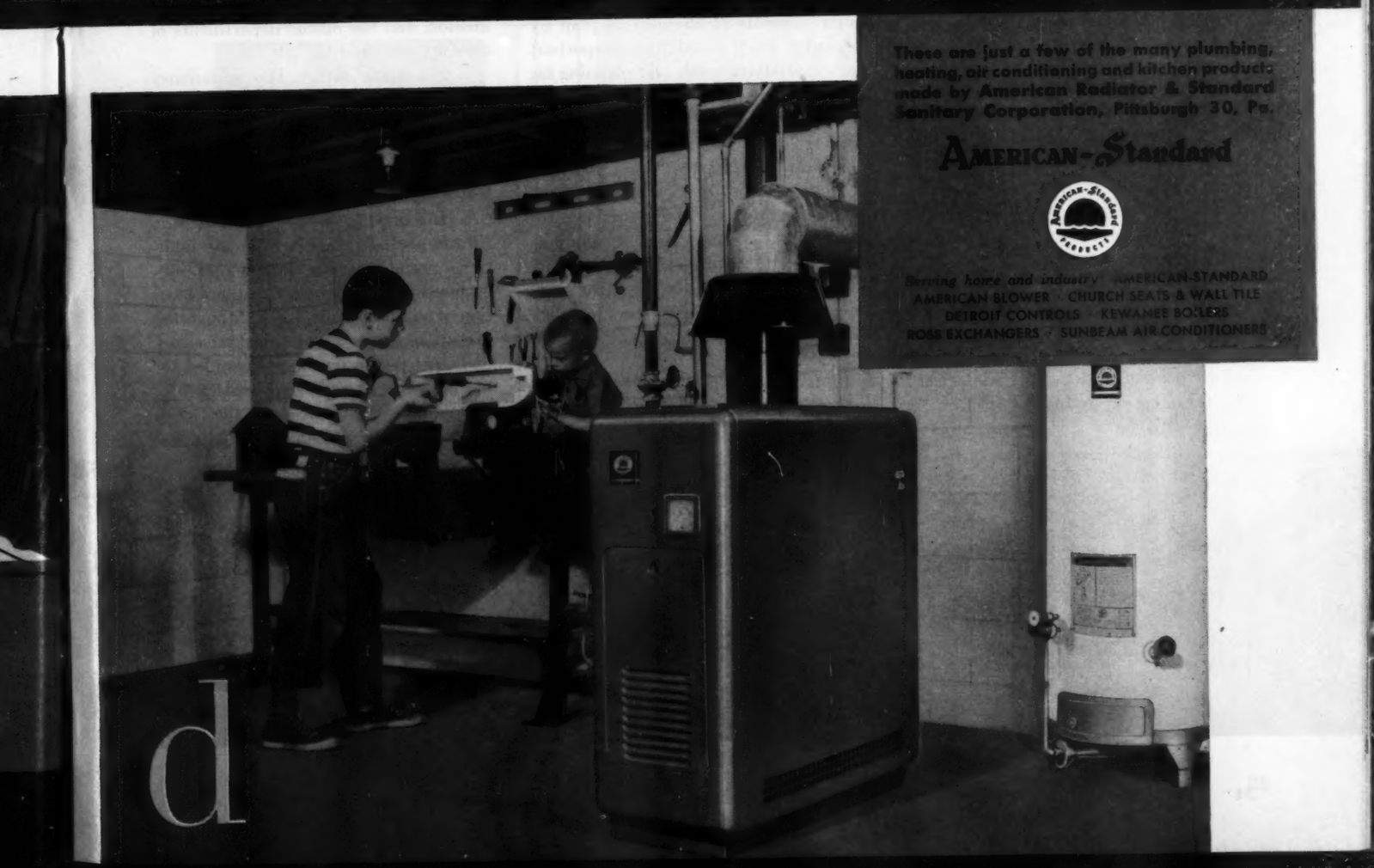
These are just a few of the many plumbing, heating, air conditioning and kitchen products made by American Radiator & Standard Sanitary Corporation, Pittsburgh 30, Pa.
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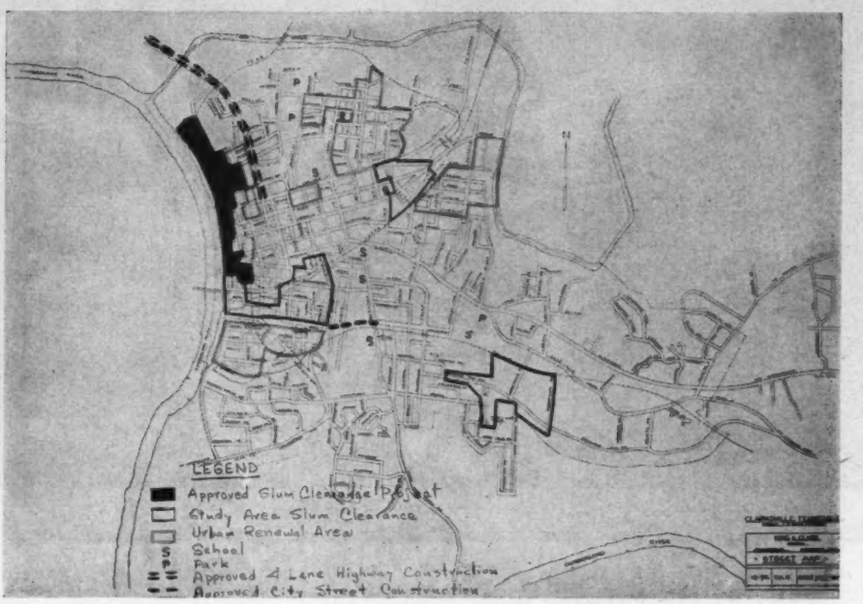
d

URBAN RENEWAL: CLARKSVILLE LEADS THE WAY

THE GREATER EMPHASIS on local responsibility in the Housing Act of 1954 is unmistakably expressed in the requirement that any community wanting to qualify for Federal financial aid under it submit to the Housing and Home Finance Agency along with its application for funds a "workable program" embodying a long-range plan for coping with the problem of urban decay. The workable program requirement also reflects the emphasis in the new legislation on an "integrated" approach which stresses conservation and rehabilitation as much as slum clearance. Although some cities had expressed early misgivings about the possible complications of the workable program scheme, by last month 84 cities had workable programs "in process" and 11 of them had been approved. And, as if to shame the hesitant, the first city to have a workable program approved was Clarksville, Tenn., pop. 22,000 (Chamber of Commerce estimate).



Clarksville street map with blighted areas indicated (in various colors on original). At bottom of page: photos show typical conditions workable program seeks to eliminate

Clarksville had a head start, because under the leadership of the Clarksville Housing Authority, the Clarksville Planning Commission and the City Administration, an intensive planning program got under way in 1952, so that its presentation to HHFA contained a record of performance as well as promise.

The "workable program," submitted last September 14, just 43 days after President Eisenhower signed the new housing act, was summarized as follows (italics indicate the seven "essential objectives" HHFA says must be covered):

1. *Adequate Codes and Ordinances.* During 1954 Clarksville improved the system of Building Code enforcement and made plans for the preparation and enforcement of a Housing Code scheduled for adoption by June of 1955.

2. *Comprehensive Community Plan.* A time schedule was established for the completion and adoption of the three major elements of the general plan by December 1954. In addition, important work in studying needs and planning for additional schools and recreational facilities has been scheduled for the year starting Jan. 1, 1955.

3. *Detailed Neighborhood Analyses.* Preliminary work was completed in selecting eight areas (including the first redevelopment area now in final planning) for Urban Renewal and/or Slum Clearance and Urban Redevelopment considerations. A survey of the areas has been completed to record existing housing conditions.

4. *Adequate Administrative Organization.* The administrative machinery through which the urban renewal processes will be carried out include the Housing Authority, the Planning Commission, and the official departments of the City government.

5. *Financing Ability.* The preliminary projections of the budgets of the City Departments indicate that the City can supply its proportionate part of the costs of Urban Redevelopment and Urban Renewal Projects.

6. *Housing for Displaced Families.* Efforts are being made to create additional private housing and low-rent public housing to make feasible the relocation of all families displaced through the operation of the urban renewal processes. Sufficient public housing is planned for the next three years, supplemented by private housing, to carry out the Urban

(Continued on page 344)

never before an industrial with these unparalleled advantages

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Write Today ... for brochure giving complete details of the remarkable new Ortho-88. In addition to installation and mounting data, it illustrates several examples of how Ortho-88 versatility can work for you. Catalog pages giving complete engineering data are included.

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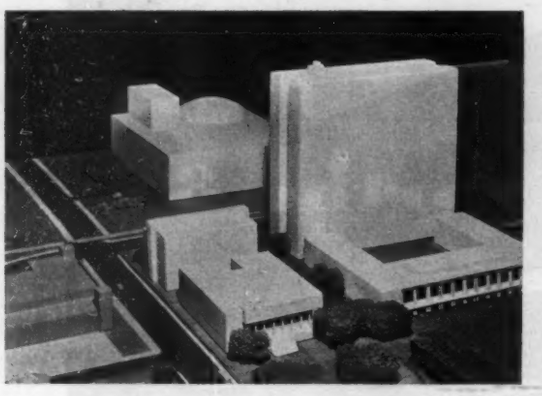
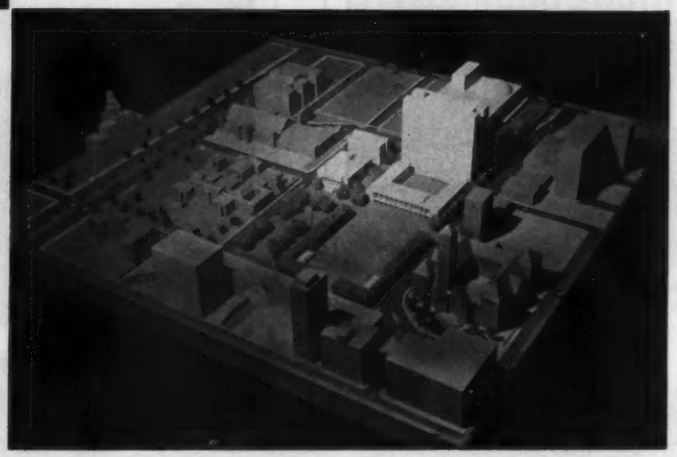
NEWS FROM CANADA *by John Caulfield Smith*

Viewing model of proposed plan for new civic square, from left to right: Toronto architects R. S. Morris, F. H. Marani, L. E. Shore, Mayor Nathan Phillips, and architects A. S. Mathers and Robert R. Moffat





TORONTO UNVEILS ITS SCHEME FOR A CIVIC SQUARE

A PRELIMINARY PLAN for Toronto's projected civic square was exhibited recently to Mayor Nathan Phillips and the city's Board of Control. A team of three Toronto architectural firms — Marani & Morris, Mathers & Haldenby and Shore & Moffat — collaborated on the design.

The center of the development will be the city hall, which will be a 12-story building if city administrative offices alone are to be housed, but which can have 20 stories if the Metropolitan Council decides to share the building. A low building in front of the city hall and connected with it will contain offices for the Mayor and for the Metro chairman, as well as City Council and Metro Council chambers.

In back of the city hall will be a bubble-topped civic auditorium.

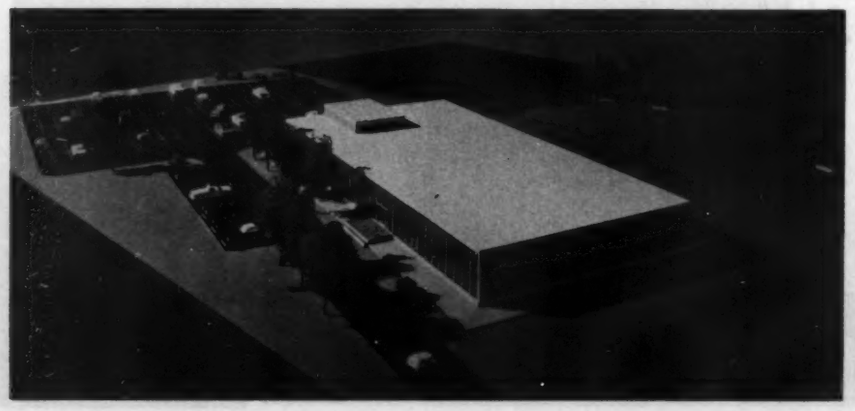
An underground parking garage, which will be large enough for 1000 cars, will service workers during the day, auditorium crowds at night.

Other government buildings to be incorporated in the square include a three-story registry office and a four-story building containing the Magistrate's Courts and offices for a police station.

A possible addition to this plan is a courthouse for Metro on the site of the present armory (to left of registry building in photograph).

No cost estimates have been made, nor has there been any suggestion of when construction might be undertaken.

(*Continued on page 30*)

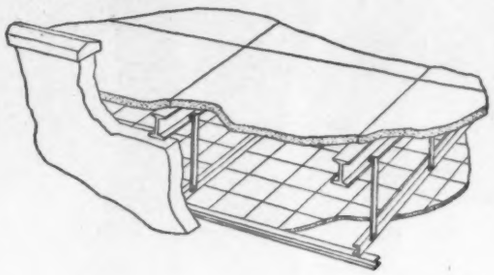


PARKIN ASSOCIATES PLAN DON MILLS HEADQUARTERS

HAVING OUTGROWN their offices in downtown Toronto, John B. Parkin Associates have designed for themselves a new headquarters building to go up in Don Mills Village. The blue-glass building, to be ready for occupancy in June, will provide 18,000 sq ft of office space. Facilities include parking space for 113 automobiles, a drafting room for more than 100 tables and desks, a lunchroom and small kitchen.

How would you insulate this shopping center roof?

This shopping center is being planned for a mid-winter region where the outside design temperature is 0° F. The building will be air conditioned in summer, heated to 70° in winter. The roof will be flat precast gypsum slab, 2″ thick, with a ceiling of ¾″ thick Armstrong Cushiontone®, a wood-fiber acoustical tile, suspended 18″ below. What roof insulation would you specify to keep building costs down and provide economical heating and cooling?

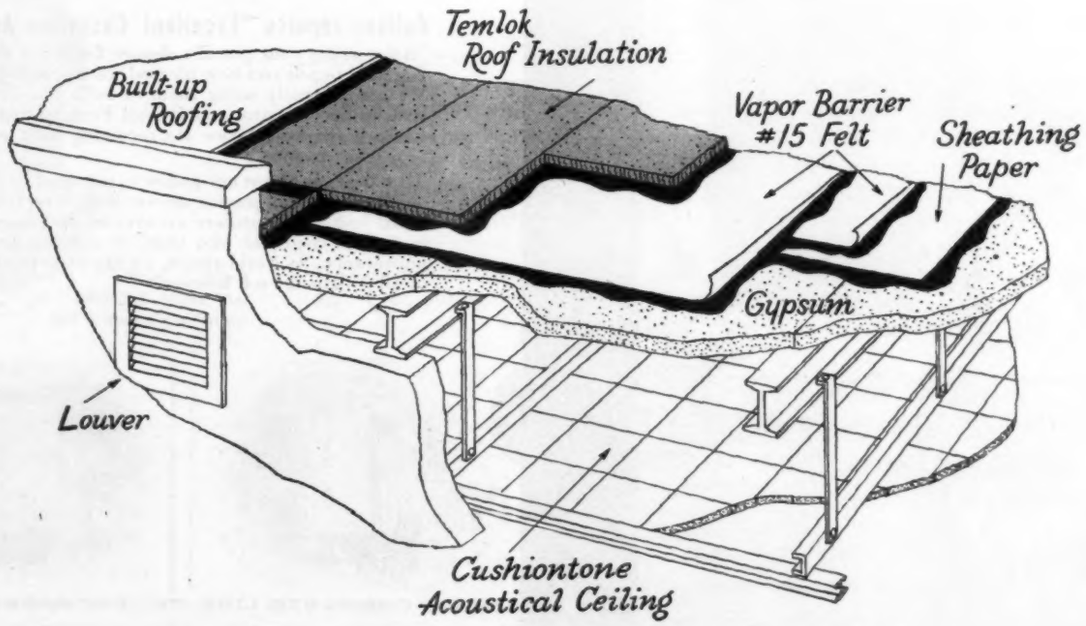


Because the ¾″ wood fiber acoustical ceiling has insulation value, thinner roof insulation may be used than would be necessary otherwise. With this construction, a one-inch thickness of Armstrong Temlok® Roof Insulation would produce an overall U-factor of 0.14, entirely adequate to prevent condensation and allow economical heating and air conditioning of the building.

Applied over a vapor seal in accordance with Armstrong specifications, low-cost Temlok is a sound choice for jobs of this type. Armstrong Temlok is a strong, lightweight board made of tough pine fibers. It provides an exceptionally firm base for built-up roofing and takes plenty of on-the-job abuse. Tiny enclosed air spaces between the wood fibers give Armstrong Temlok Roof Insulation its exceptionally high insulating efficiency.

Where service conditions are especially severe, or moisture protection of prime importance, Armstrong Corkboard or Asphalt-Impregnated Temlok may better serve your needs. For full details on all three Armstrong roof insulating materials, call your nearest Armstrong office.

For your copy of the free booklet, "Armstrong Roof Insulations," write Armstrong Cork Company, 3804 Rock Street, Lancaster, Pennsylvania.



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here's the modern,

1 No special construction or added support needed. Sub-floor is laid in regular manner, cutting small hole for drain connection. No need for lead pan, sub-layers, mortar etc. Savings of on-the-job labor makes installed cost substantially less than built-up floors.

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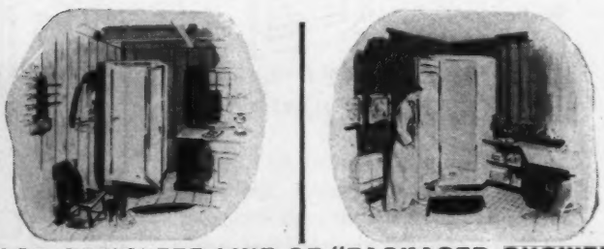
Builder reports "Excellent Customer Acceptance"

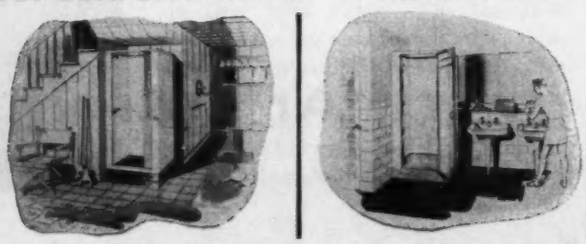
"After using your precast shower floors for the past year, I'm glad to tell you how pleased we are with your product. We are currently using them in both Larchmont Village, Inc., in Sacramento, and Bristol Park in Santa Ana, Cal. From both projects we are receiving very excellent customer acceptance."

"It has always been our policy to put quality products into our houses. Your precast shower floor is certainly a quality item, and the customer recognizes and appreciates this fact. The customer also likes its colorful and attractive appearance. As I said above, we like your product and best of all it helps us sell homes."

—C. E. Brock



MOST COMPLETE LINE OF "PACKAGED SHOWERS"



money-saving way to build a shower

2 The shower floor slides into place. It is a self-contained, monolithic unit with both metal tiling-in flange and drain cast integral. Plumber makes calked drain connection quickly and easily while installing floor. No call backs—no other trades required—ideal with any wall material.

3 The modern Precast floor provides perfect drainage *permanently*. Not fastened to framing or bonded to floor, the FIAT floor is never damaged by building settlement. Shower walls are finished over tiling-in flange to complete an economical, attractive and absolutely *leakproof* shower.

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Now you can keep shower bath water where it belongs for the lifetime of the house with a guaranteed, leakproof FIAT PRECAST SHOWER FLOOR. Never again risk your reputation on intricate, multi-layer, built-up floors that are both inefficient and unsanitary. Try this modern, money-saving FIAT FLOOR to solve an age old building problem. FIAT FLOORS are designed for use with any type shower wall material—come in a range of suitable sizes—available in either PreCast *Terrazzo* or *Artstone*, both of which provide a smooth, joint free, easy to clean appearance with a warm foot-grip surface. And best of all you can save up to 40% with FIAT FLOORS, according to leading builders who have installed them. Performance proved by thousands now in use! It will pay you to get all the facts, so mail coupon today.

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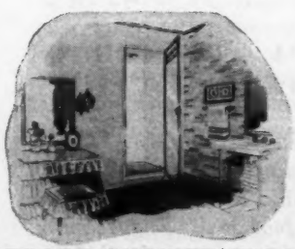
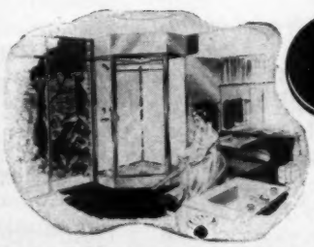
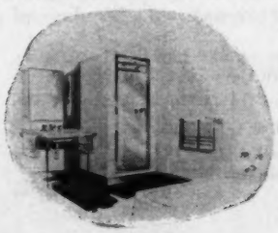
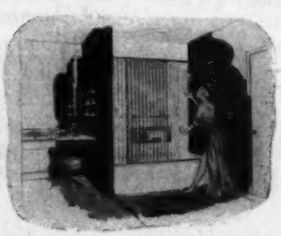




• PRECAST SHOWER FLOORS • BATH ENCLOSURES





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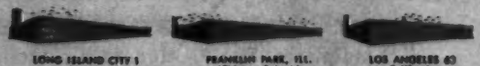

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FIAT METAL MFG. CO.
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☐ Have a representative contact me.

Name_____

Address_____

City_____ State_____

Type of Business_____

AR-4

THE RECORD REPORTS

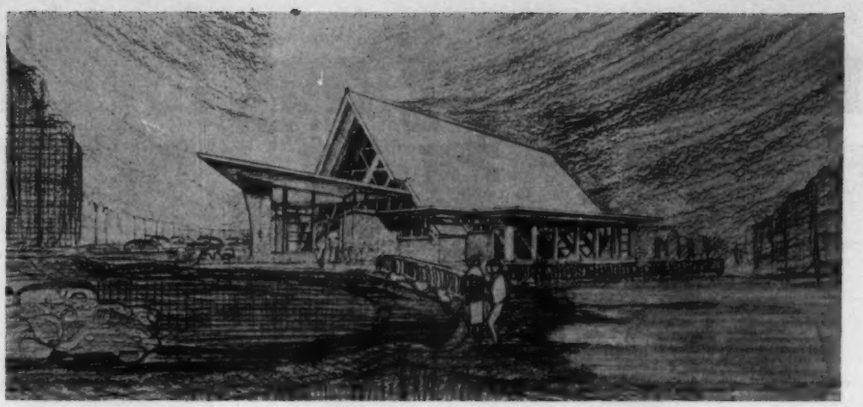
CANADA

(*Continued from page 26*)

TRADE MINISTER EXPECTS CONSTRUCTION RISE IN '55

The Rt. Hon. C. D. Howe, Minister of Trade and Commerce, predicts a 10 per cent increase in 1955 construction expenditures in comparison with those of 1954. In a white paper on projected private and public investment outlays for this year, submitted recently to the House of Commons, Mr. Howe announced that construction spending planned for 1955 totals $4064 million. All major categories, he said, should be involved in this rise. Housing expenditures, it was predicted, would increase 10 per cent over 1954, with 116,000 starts against the 113,000 for last year. A 10 per cent increase was also forecast for non-residential and engineering construction, while a rise of 19 per cent is expected in institutional building.

The paper, which was based on a survey of "some 16,000 business establishments across Canada" and of proposed expenditures by governments, institutions and private house builders, forecasts a total investment of $5.8 billion in new construction, machinery and equipment, a figure about six per cent higher than that for 1954.



The Alexander Graham Bell Memorial Museum, to be built at Baddeck, N. S., uses tetrahedral motif to recall Bell's use of tetrahedron in his studies of mechanical flight; architects are A. Campbell Wood, Hugh W. Blachford and Harold Ship, with O. Howard Leicester as consulting architect

ALBERTA ARCHITECTS CONVENE IN CALGARY

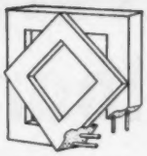
K. C. Stanley was elected president of the Alberta Association of Architects for 1955 at the annual meeting of the organization held in Calgary recently. Mr. Stanley is a partner in the firm of Dewar, Stevenson & Stanley of Edmonton.

Other officers are: George W. Lord, Edmonton — first vice president; W. G. Milne, Calgary — second vice president; H. L. Bouey, Edmonton — honorary

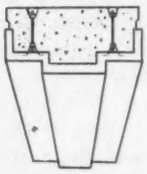
(*Continued on page 32*)

David W. Taylor Model Basin, Carderock, Md.
Designer: Rear Admiral Ben Moreell, U.S. Navy
General Contractor: Turner Construction Co.
Mo-Sai Slabs by The Dextone Company, New Haven

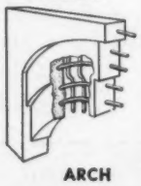
TOUGH, ATTRACTIVE MO-SAI FACING SLABS LIKE NEW AFTER 16 YEARS!



GRILL WORK



PILASTER



ARCH

The top photo was made on completion in 1938. The unretouched inset photo at left was taken in December, 1954. Here is remarkable evidence of Mo-Sai's durability, lowest maintenance and beauty over the years!

Mo-Sai facing slabs are an intimate combination of Portland cement, facets of granite or quartz aggregate and galvanized steel rod mesh with the virtues of all three. Their color is unlimited. Mo-Sai is precast to any desired profile, is surprisingly thin (a minimum of two inches) and may be employed in almost any size or shape without fear of weakness or excess weight. Truly versatile, Mo-Sai's economy is achieved by incorporation of soffit, return, cornice and other decorative elements as one precast unit for new construction or modernization.

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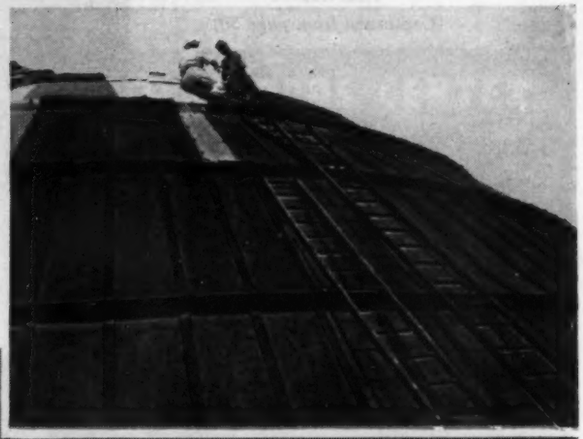
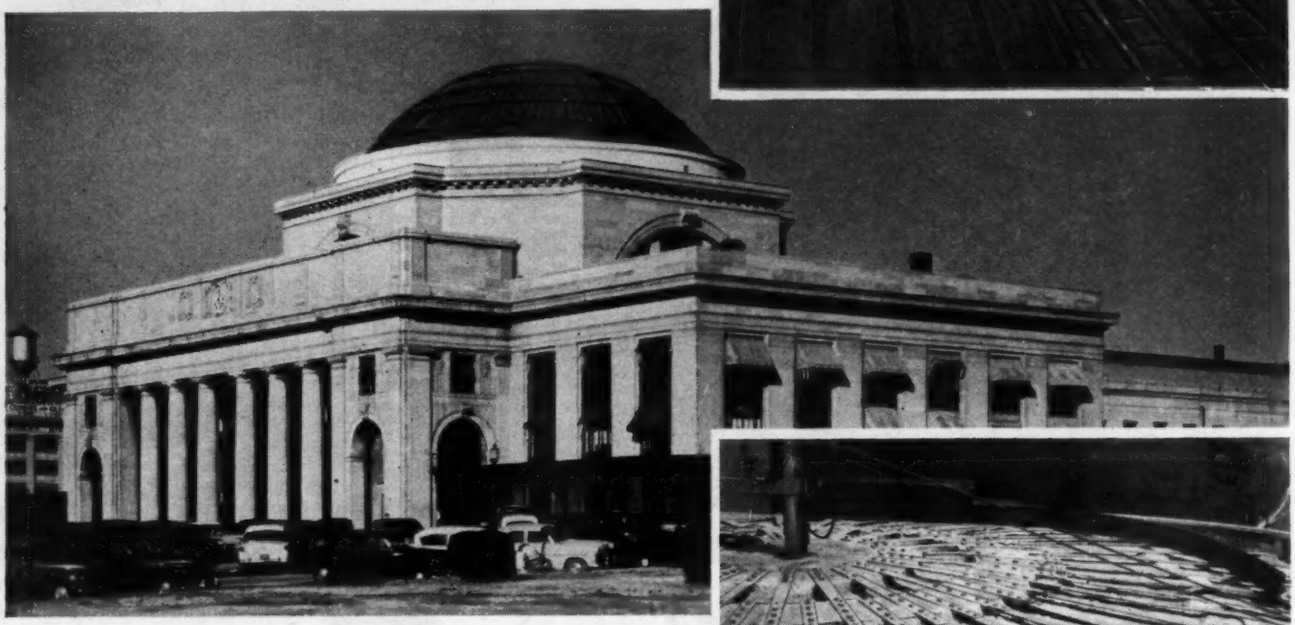
Oklahoma City — Harter Marblecrete Stone Co.
UTAH
Salt Lake City 6 — Otto Buehner & Co.
VIRGINIA
Richmond 7 — Economy Cast Stone Co.
WASHINGTON
Seattle 7 — Olympian Stone Co.
WISCONSIN
Oshkosh — Badger Concrete Co.
CANADA
Toronto 13 — Toronto Cast Stone Co.

Re-roofing a dome with copper

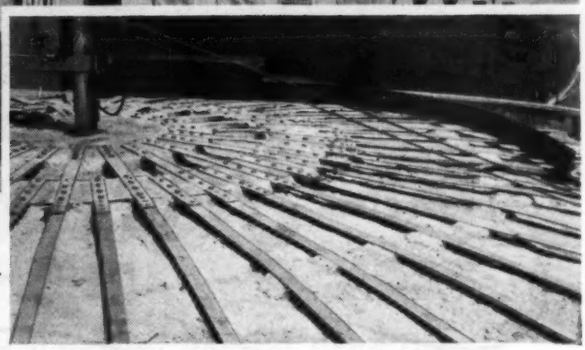
ROOFING PANS preformed from 20″ x 96″ x 20 oz. gage cold rolled copper sheets were used for the batten seam construction.



COMPLETED COPPER-COVERED DOME which is 94′ 6″ in diameter and 28′ high. Architect: Carneal & Johnston. General Contractor: James Fox & Sons, Inc. Sheet Metal Contractor: N. W. Martin & Brothers. Anaconda Distributor: Gordon Metal Company. All are located in Richmond, Va.



NETWORK OF COPPER ALLOY BARS and angles suspended from the crown help to hold in place the additional structural surfacing required to form the new contour. Angles 3″ x 5″ bent to the radius and curvature of the dome produced the desired shadow lines.



New roof uses 45,000 lb. of Anaconda Sheet Copper . . . assures owner of low upkeep, long service

When the Richmond Terminal Railway Company's Broad Street Station at Richmond, Va., was built, the dome was roofed with a nonmetallic material. Structural movement of the roof covering made frequent repairs necessary. As it appeared this trouble would continue to mount, the owner authorized an extensive study by its architect-engineers resulting in the selection of copper.

Only this time-tested material could economically match the durability of this handsome building, for copper measures its economy by *generations* of service. It requires little attention or maintenance. And, as it grows older, a copper roof acquires a beautiful green patina.

Construction details

Placing a new copper covering over a concrete spherical surface called for special designs which dictated that the major portion of the copper roof be of batten seam construction using cold rolled copper sheets of 20 oz. gage, 20″ x 96″. Inverted bronze channels were employed for the battens. For the crown of the dome, flat lock seam construction was employed using 16″ x 18″ roofing squares of 20 oz. gage cold rolled copper. Edges were pretinned to a depth of 1½″.

When roofing must *last*, ANACONDA Sheet Copper costs *less*. Good design and proper application insure its enduring service. Anaconda building engineers were privileged to assist with the design of this important roofing job. Their counsel is equally available to you in all problems involving sheet copper design and construction. 8457

FREE file of drawings—Do you have the FREE Anaconda file of drawings? Nearly fifty drawings show new or improved ways to apply sheet copper. Each is printed on a separate 8½″ x 11″ page, handy for quick-reference filing. This entire series may be obtained absolutely FREE by writing for Portfolio S to: **The American Brass Company, Waterbury 20, Conn. In Canada: Anaconda American Brass Ltd., New Toronto, Ont.**

for better sheet metal work use

ANACONDA®

COPPER

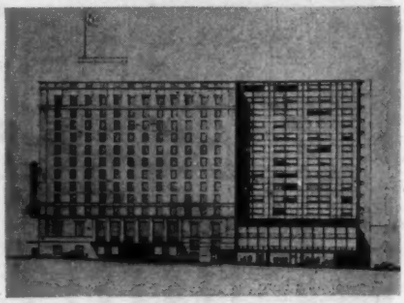
CANADA

(*Continued from page 30*)

secretary; G. B. Ascher, Edmonton — honorary treasurer; and J. B. Bell, Edmonton; J. H. Cook, Calgary; D. G. Forbes, Edmonton; and H. A. Henderson, Edmonton — councillors.

Architect Paul Thiry, of Seattle, was the banquet speaker.

Current projects in Vancouver include (above) the Sir James Douglas School, designed by Vancouver architect E. D. King, and (below) addition to Hotel Georgia, by Sharp & Thompson, Berwick & Pratt, architects



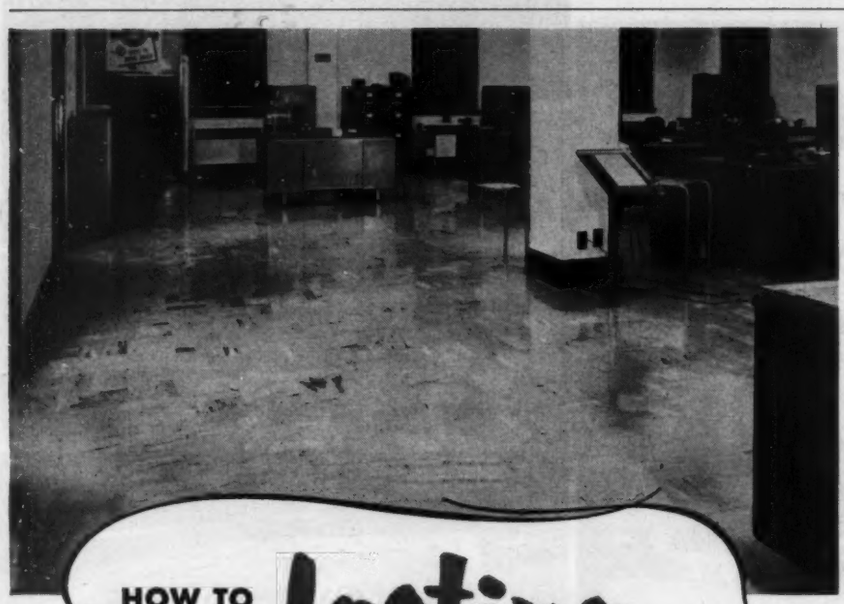
NEW OFFICERS ELECTED BY ONTARIO ENGINEERS

The new president of the Association of Professional Engineers of Ontario is John R. Montague of the Ontario Hydro Electric Power Commission, Toronto. Vice presidents are Merritt W. Hotchkin, Kirkland Lake, John H. Fox, Toronto.

NEWS NOTES

A special bulletin on **"Icicles and Icedams"** has been prepared by the Small House Architectural Service of the Ottawa Chapter, Royal Architectural Institute of Canada; copies are available from the chapter secretary, Walter C. Sproule, 74 Sparks St., Ottawa. . . . The year-old **Specification Writers Association,** which was formed to establish better standards of terminology for specifications writing, and which has its headquarters in Toronto, is making efforts to acquire a national membership; inquiries are sought by president A. W. Harper of Govan, Ferguson, Lindsay, Kaminker, Langley & Keenleyside, Toronto. . . . **Siegfried Giedion,** of Harvard University's Department of Architecture, recently addressed the Architectural Society of the University of Toronto.

(*Continued on page 36*)



HOW TO SPECIFY **lasting** FLOOR BEAUTY

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Or will you really *finish* the job by specifying a proven METHOD of floor care to preserve that "new floor" beauty, year after year?

The famous MULTI-CLEAN METHOD reduces cleaning time and adds many years of floor life at the same time it is preserving beauty. It is a *complete*, scientific program calling for use of the *right* machine, the *right* material, and the *right* technique.

Sweet's Architectural File contains descriptions of MULTI-CLEAN's complete line of floor machines, scrubbing machines, vacuum cleaners, and liquids. *Sweet's* also contains detailed specs you can use for prescribing future care of wood, concrete, terrazzo, linoleum, asphalt and rubber tile.

Let your local MULTI-CLEAN representative serve as your expert floor consultant. You'll find his name in *Sweet's*, too. Call him or write Department AR-25, Multi-Clean Products, Inc., 2277 Ford Parkway, St. Paul 1, Minn.

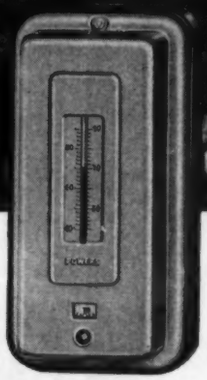
MULTI-CLEAN Method

175 Year old problem of storing and handling records solved by this unique modern building

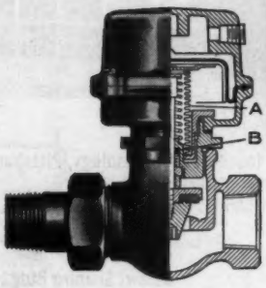
UNITED STATES MILITARY PERSONNEL RECORDS CENTER

In Northwest St. Louis County, Mo.

Hellmuth, Yamasaki & Leinweber, Architects ★ John D. Falvey, Mechanical Engineer
Thomas J. Sheehan Co., Heating and Plumbing Contractor



POWERS



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Temperature and Humidity Control Used Here

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The main building of the Records Center is six stories high, 728′ long 282′ wide. It houses the working areas while the two story assembly building 237′ x 103′ provides dining, meeting and other facilities.

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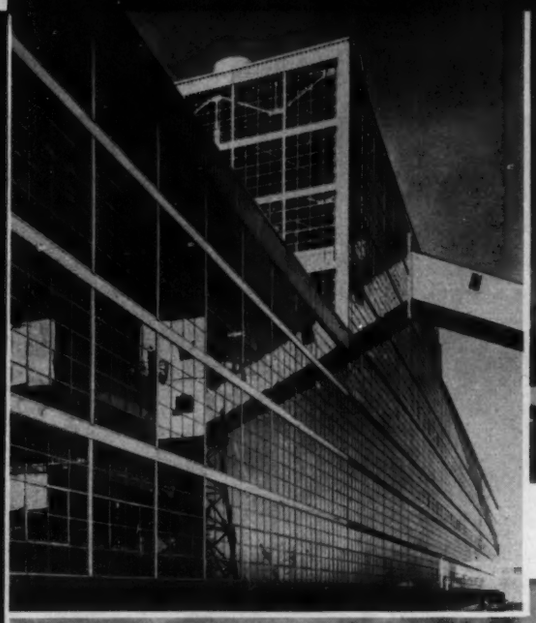
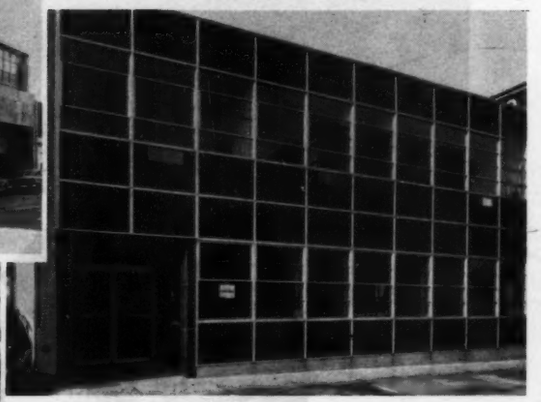


Left: Libbey Owens Ford, Toledo, Ohio
Engrs. & Bldrs.—A. Bentley & Son

Above: Music Hall, Houston, Texas
Archts.—Lloyd & Morgan
Bldr.—Fisher Construction Co.

Left: Atlantic National Bank, West Palm Beach, Fla.
Archt.—S. L. Shepherd **Bldr.**—Arnold Construction Co.

Below: Yellow Cab Co., Cleveland, Ohio
Archts.—Weinberg & Teare
Bldrs.—Paugh & Brown



Left: Carnegie Institute of Technology, Pittsburgh, Pa.
Archts.—Mitchell & Ritchey
Bldr.—George H. Chilli

Below: Veterans' General Medical Hospital, Pittsburgh
Associated Archts.
Altenhof and Bown
Mitchell and Ritchey
Ingham, Boyd and Pratt
York and Sawyer
Bldr.—John A. Johnson, Inc.

Below: Shapiro Bldg., Washington, D. C.
Designed & built by owner

Below: George Rogers Clark High School, Springfield, Ohio
Archts.—Zeller & Hunter **Bldr.**—Sever Williams

QUALITY APPROVED P-62

76 *Years Of*
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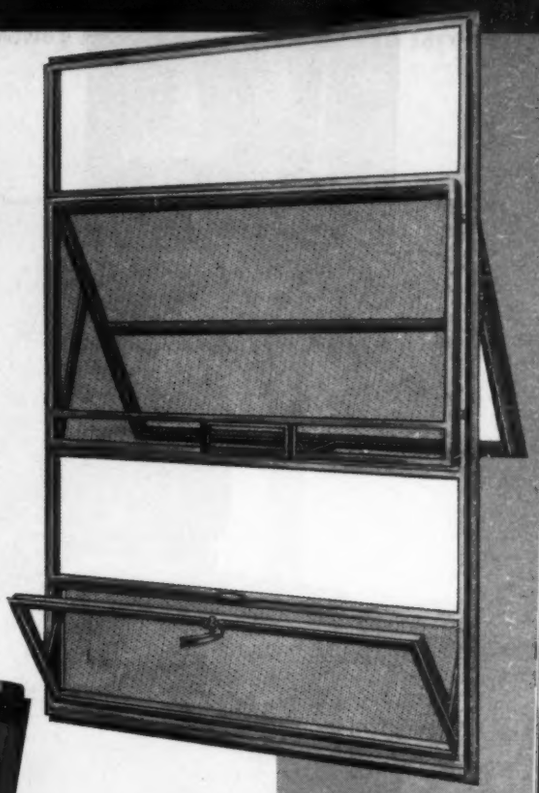

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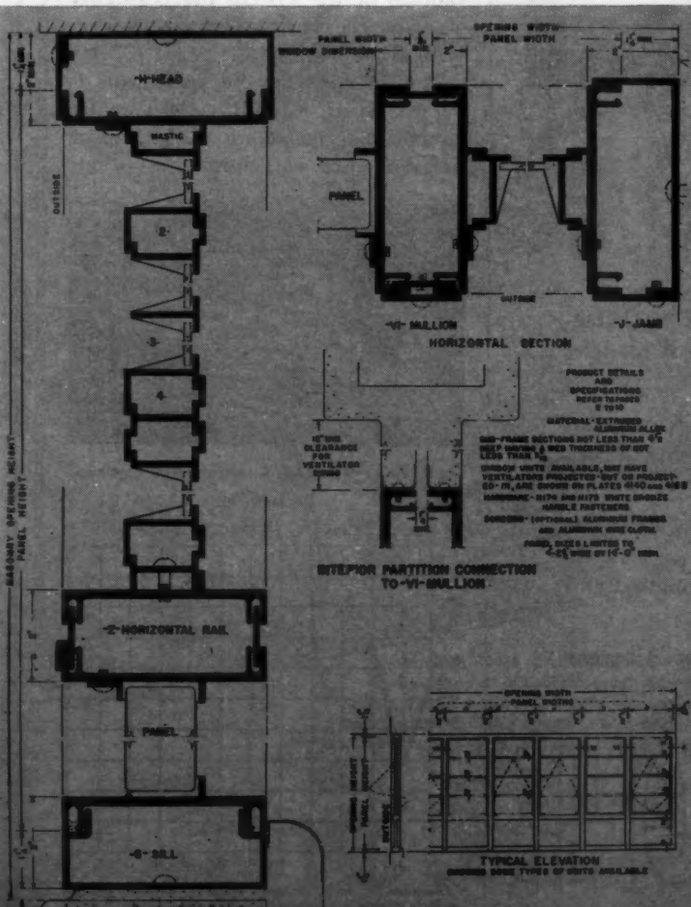
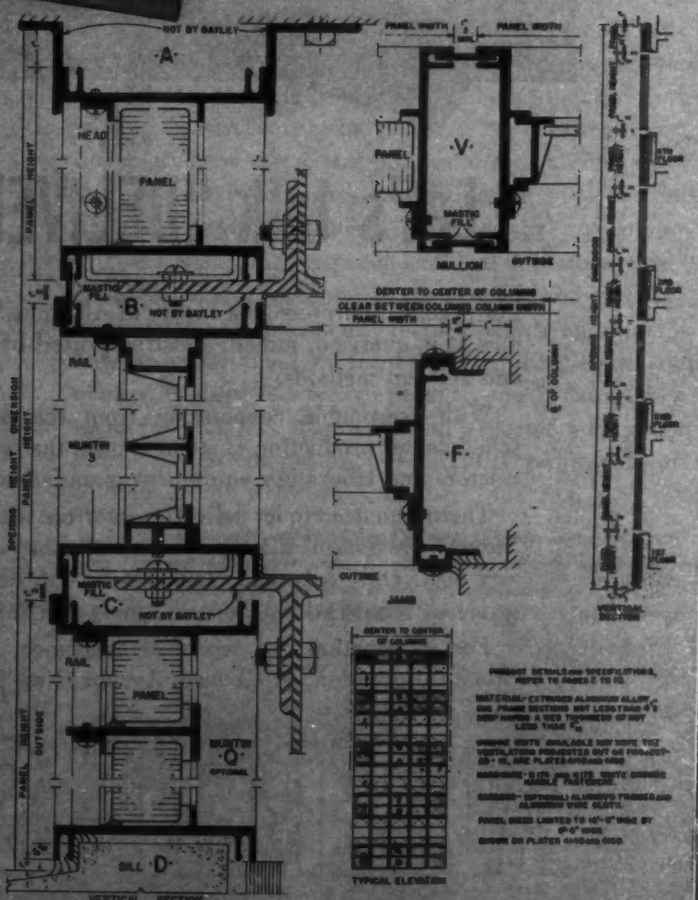


Bayley Aluminum Curtain-Wall Window—Band Type—3" to 1'0" Plate 493A



Bayley Aluminum Curtain-Wall Window—Tier Type—3" to 1'0" Plate 494A

Full size details of these plates available on request.

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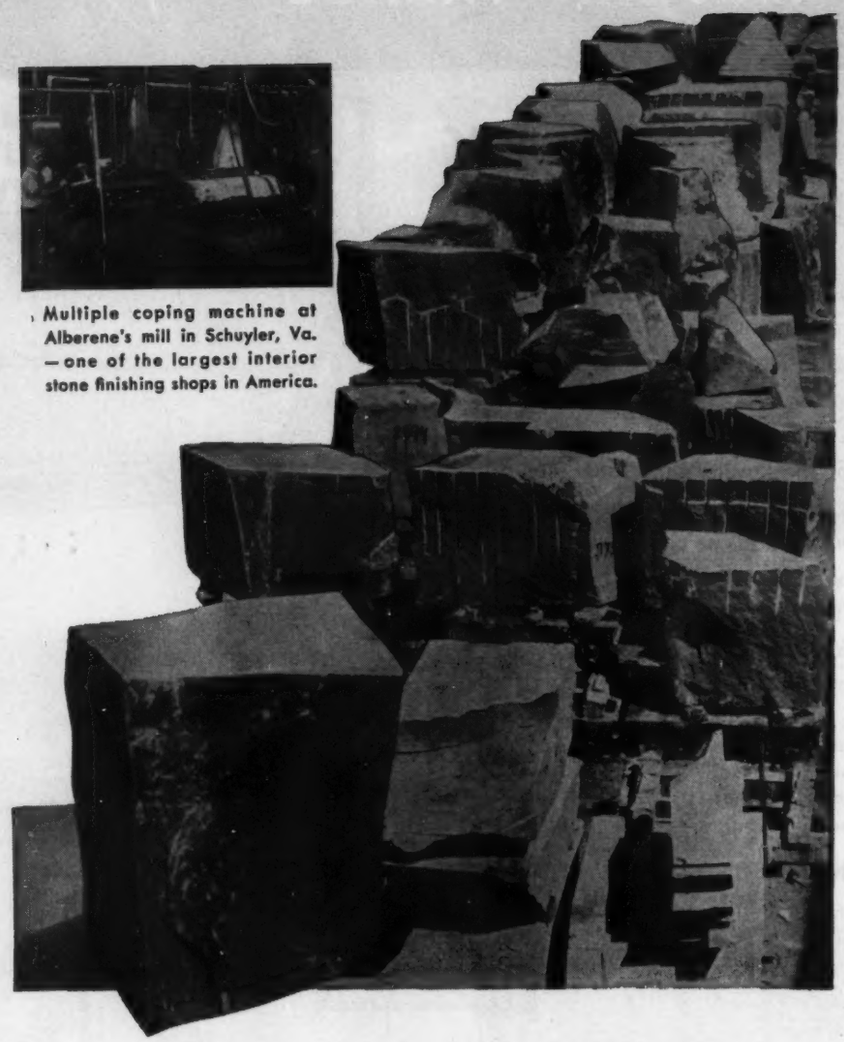
Multiple coping machine at Alberene's mill in Schuyler, Va. — one of the largest interior stone finishing shops in America.



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There's no need to let deliveries interfere with getting Alberene Stone — *the natural silicate stone with the surface that goes all the way thru!* Only Alberene Stone can be cut, drilled, tongued and grooved, refinished and reused almost indefinitely.

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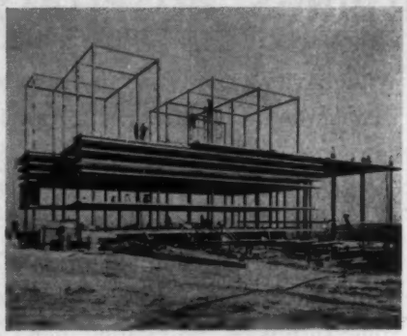
THE RECORD REPORTS

CANADA

(*Continued from page 32*)

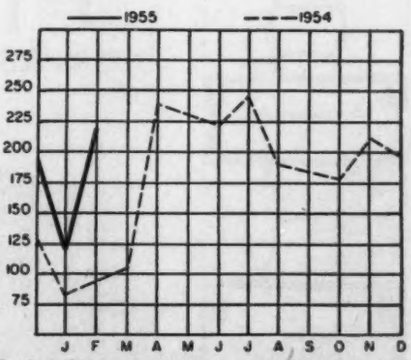


"TALLEST" LIFT SLAB JOB UNDER WAY IN CALGARY

Two of the six Rideau Towers apartments now under construction in Calgary are being built with the lift slab method; the seven-story buildings are believed to be the tallest lift slab jobs so far attempted. The engineers for the project claim that more than 30 per cent of the usual structural costs were saved, and cite as a further advantage of the system the possibility of casting the concrete floors at temperatures as low as −30° F.

The architect for the apartments is Peter Caspari, F.R.I.B.A., of Toronto; structural engineers are W. V. Zinn & Associates Ltd. of Toronto.

Contracts Awarded: Comparative Figures*
(in $ million)



* Compiled by the editor and staff of The Building Reporter, from information collected by MacLean Building Reports

(*More news on page 38*)

No. 1
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WHAT TO LOOK FOR IN QUALITY TOILET COMPARTMENT CONSTRUCTION

One of many major differences that give you your money's worth in satisfactory service!

Porcena

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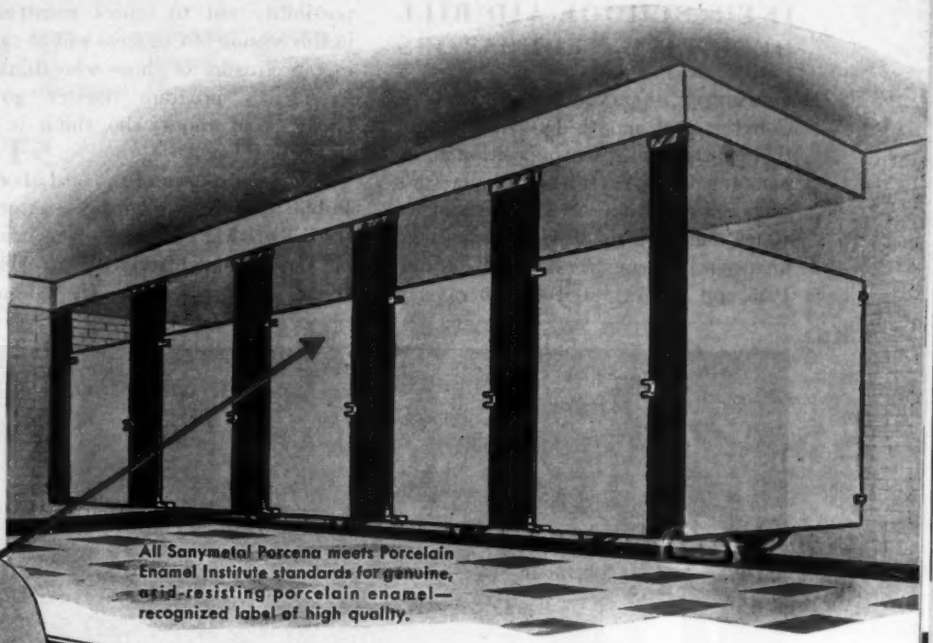

All Sanymetal Porcena meets Porcelain Enamel Institute standards for genuine, acid-resisting porcelain enamel—recognized label of high quality.

Genuine
PORCELAIN ENAMEL
"THE LIFETIME FINISH"
THIS MATERIAL IS
ACID RESISTING
PORCELAIN ENAMEL
• Will not rust, burn, or discolor
• Does not harbor odors or germs
• As easy to clean as a china dish
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• Hardest household work surface
• Color and beauty will not fade
GUARANTEED by the manufacturer to conform with the "General Specification for Porcelain Enamel Surfaces-Acid Resistant Type (PEI: S-102)" of the Porcelain Enamel Institute, Washington, D. C.
TO CLEAN: USE DAMP CLOTH, SOAP AND WATER

MINIMUM OF MAINTENANCE—The sanitary flush surfaces of PORCENA are economically maintained. Pencil or lipstick marks are easily removed. Porcena resists cleaning caustics, uric acids, and withstands scratches and shocks, still retaining its original luster.

IT IS NOT necessary to gamble on getting long life and low maintenance cost in toilet compartments you specify.

PORCENA, Sanymetal's vitreous porcelain on steel, has proved to have the lowest maintenance cost. It has been in actual use for more than 19 years, with over 2,000 actual installations.* Today the porcelain surfaces of even the oldest are as bright as new after being sponged with soap and water. Not one has faded, failed, required repair, or replacement, due to lack of durability or normal use of the material. Porcena has the hardness of glass and the natural strength of steel—it never requires refinishing.

There is nothing "experimental" or "developmental" about Sanymetal Porcena. Sanymetal originated *porcelain enamel* toilet compartments, and thoroughly understands how to make them uniform in durability, color and quality. Porcena is a proven product, one of many Sanymetal features. Ask your Sanymetal Representative about other features you get in Sanymetal Compartments—all of them at no extra cost.

**See Sweet's, or send for Catalog 92 describing all Sanymetal Compartments. If you wish, we will mail other advertisements in this series about quality construction features, and a list of PORCENA installations in your area.*

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By Ernest Mickel

IKE'S SCHOOL AID BILL DECRIED BY EDUCATORS

COMMITTEE HEARINGS in both houses of Congress last month left little doubt that (1) there is serious opposition in the school field to President Eisenhower's proposed program of Federal aid to states and municipalities to help them finance school construction (AR, March 1955, pp. 10–11); and (2) there is a possibility aid to school construction in this session of Congress will be caught in the crossfire of those who think the President's program doesn't go far enough and those who think it goes too far.

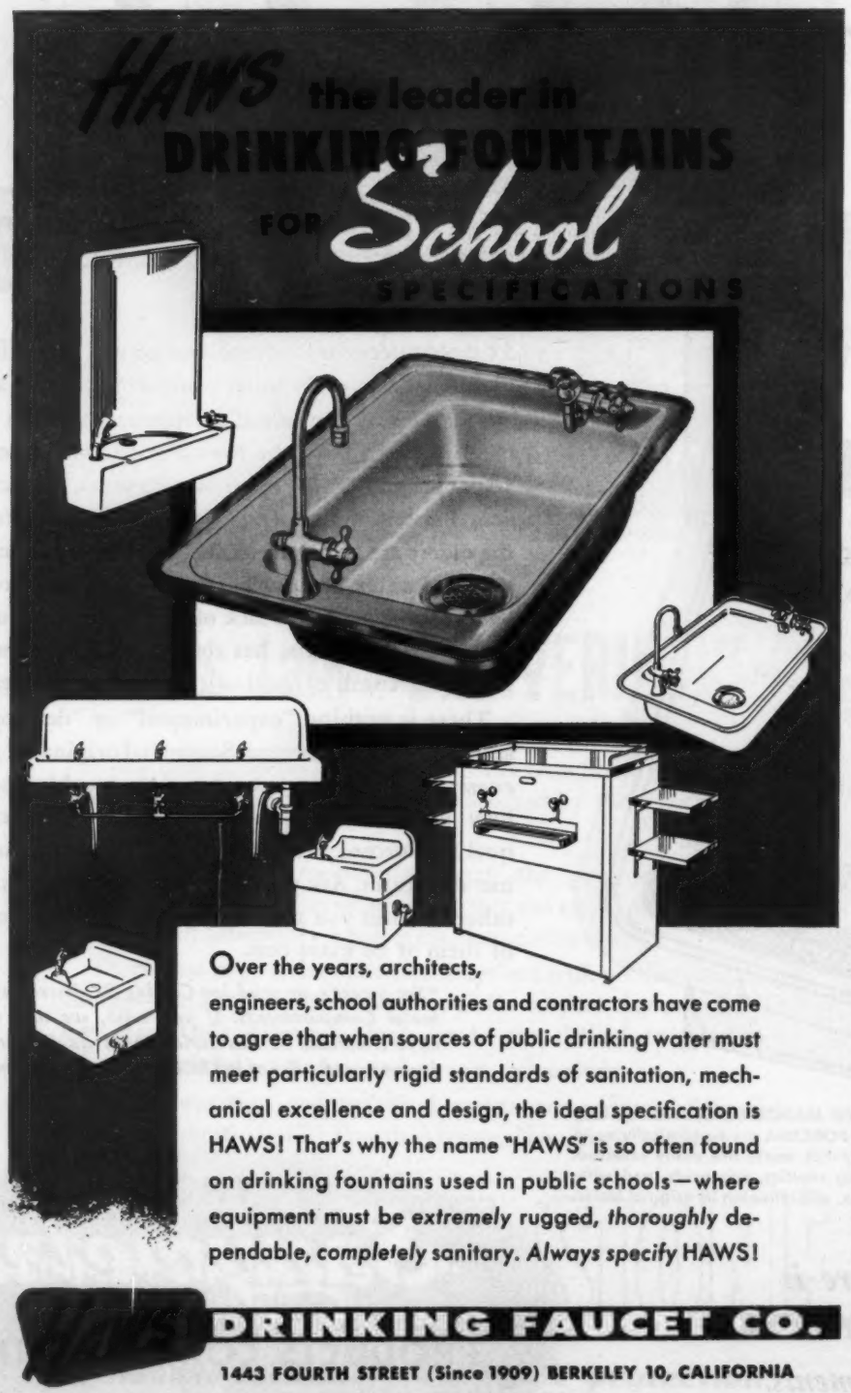
The Senate Committee on Labor and Public Welfare, headed by Senator Lister Hill (D-Ala.), held full-dress hearings on the Administration bill (S-968) introduced by Senator H. Alexander Smith (R-N. J.); and a long list of witnesses from the field of education presented a unanimous front in opposition — "too little aid and too much control" was the burden of their objections.

The American Institute of Architects registered objection to the section encouraging establishment of state school building authorities. While it refused to take a stand on the issue of financing methods, the A.I.A. said architects foresaw a considerable waiting period before construction could be started under Title II of the proposed legislation. (Title II provides for Federal assistance to states in establishing special school building agencies to build schools for local school districts on a lease-purchase basis.) Lee Cochran, of the Chicago architectural firm of Perkins and Will, testifying for the A.I.A., cited the number of reviews and approvals already required in current practice, noted that even the existing systems are subject to considerable delay and pointed out that an additional step would slow down the process even more. The A.I.A. testimony was prepared by the A.I.A. national Committee on School Buildings, which met in Washington to consider the implications of S. 968. Members at this meeting were Henry L. Wright, Los Angeles, Chairman; John W. McLeod, Washington, vice chairman; Mr. Cochran; and Richard L. Aeck, Atlanta.

It was William G. Carr, executive secretary of the National Education Association, who used the "too little aid and too much control" phrase that seemed to sum up educators' reaction. Mr. Carr had high praise for the principles enunciated in the President's special message on education, but insisted the bill did not embody them. "The purpose of the bill is stated as being 'to provide assistance of a substantial and effective nature,'" Mr. Carr noted. "It will not provide such assistance."

Dr. Edgar Fuller, executive secretary of the Council of Chief State School Officers, said also the Council was completely in accord with the President's purpose, as stated in his special message, for "a plan of Federal cooperation with the states, designed to give our school children as quickly as possible the classrooms they must have," but asserted that the Administration bill could not achieve this end. "On the contrary," said Dr. Fuller, "the authors of

(*Continued on page 322*)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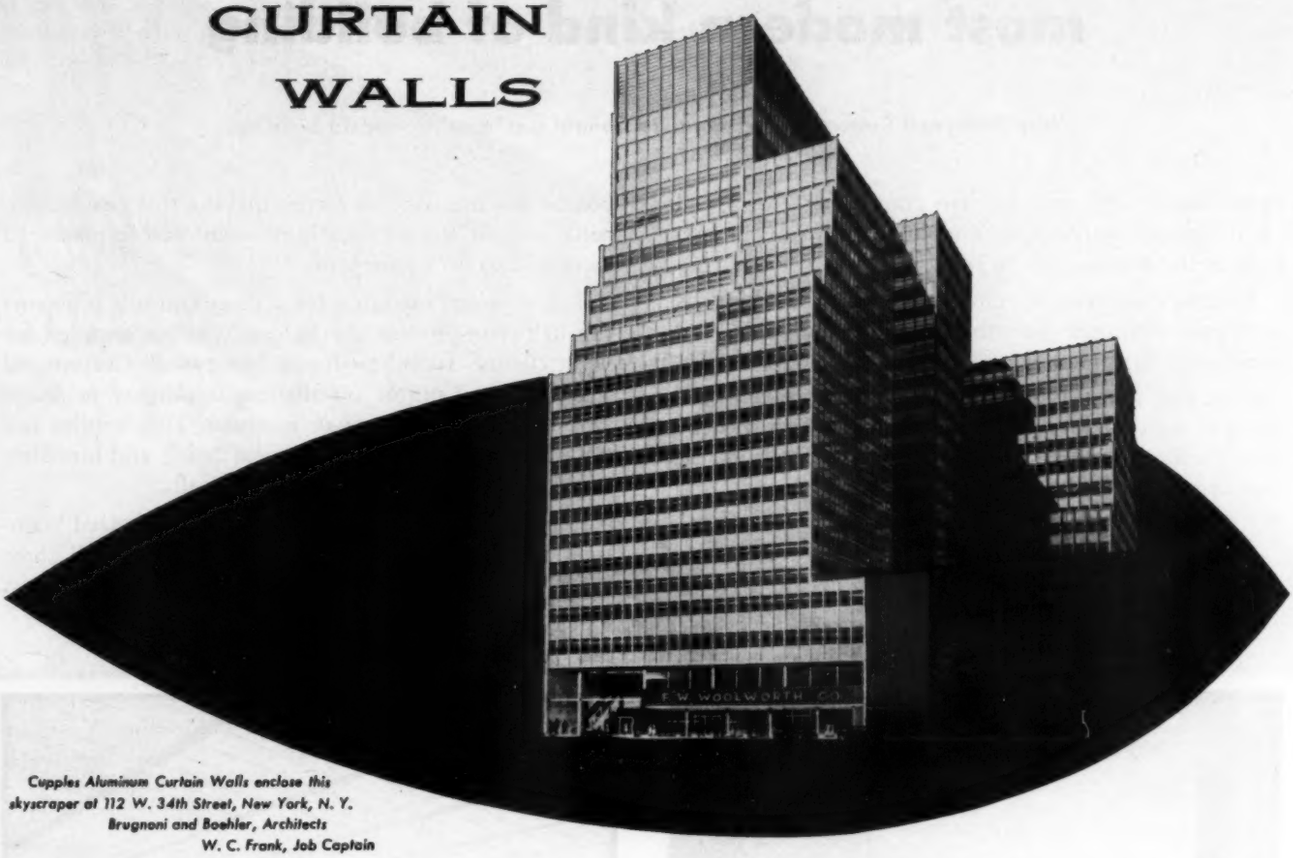

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Strategically located thermostats in large banking areas such as the one shown provide comfort at all times. They do this by compensating for exposure, occupancy—and for varying crowds at different times of the day. In addition, comfort is maintained in private offices (see floor plan) by installation of a thermostat in each office. This meets the needs of individual offices—and of the individuals who occupy them.

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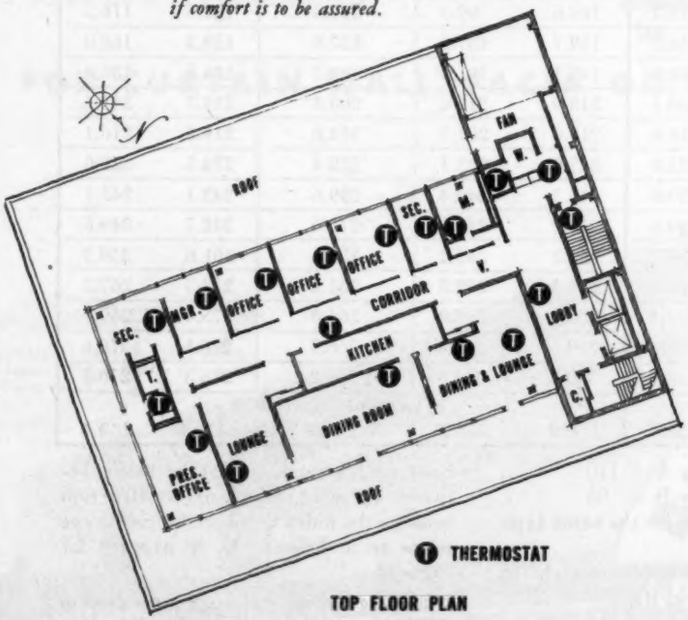

TOP FLOOR PLAN

Skidmore, Owings & Merrill, architects. Weiskopf & Pickworth, structural engineers. Syska & Hennessy, mechanical & electrical engineers. George A. Fuller Co., builders.

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CONSTRUCTION COST INDEXES

Labor and Materials — **U. S. average 1926–1929 = 100**

Presented by Clyde Shute, manager, Statistical and Research Division, F. W. Dodge Corp., from data compiled by E. H. Boeckh & Assocs., Inc.

NEW YORK

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1930	127.0	126.7	124.1	128.0	123.6
1935	93.8	91.3	104.7	108.5	105.5
1939	123.5	122.4	130.7	133.4	130.1
1946	181.8	182.4	177.2	179.0	174.8
1947	219.3	222.0	207.6	207.5	203.8
1948	250.1	251.6	239.4	242.2	235.6
1949	243.7	240.8	242.8	246.4	240.0
1950	256.2	254.5	249.5	251.5	248.0
1951	273.2	271.3	263.7	265.2	262.2
1952	278.2	274.8	271.9	274.9	271.8
1953	281.3	277.2	281.0	286.0	282.0
1954	285.0	278.2	293.0	300.6	295.4
Nov. 1954	285.8	278.5	294.2	302.3	296.8
Dec. 1954	285.8	278.5	293.1	301.6	294.6
Jan. 1955	286.5	279.4	293.2	301.7	294.8
	% increase over 1939				
Jan. 1955	131.9	128.2	124.3	126.1	126.5

ATLANTA

Period	Residential		Apts., Hotels Office Bldgs.	Commercial and Factory Bldgs.	
	Brick	Frame	Brick and Concr.	Brick and Concr.	Brick and Steel
1930	82.1	80.9	84.5	86.1	83.6
1935	72.3	67.9	84.0	87.1	85.1
1939	86.3	83.1	95.1	97.4	94.7
1946	148.1	149.2	136.8	136.4	135.1
1947	180.4	184.0	158.1	157.1	158.0
1948	199.2	202.5	178.8	178.8	178.8
1949	189.3	189.9	180.6	180.8	177.5
1950	194.3	196.2	185.4	183.7	185.0
1951	212.8	214.6	204.2	202.8	205.0
1952	218.8	221.0	212.8	210.1	214.3
1953	223.3	224.6	221.3	221.8	223.0
1954	219.6	219.1	223.5	225.2	225.4
Nov. 1954	220.3	220.0	224.3	226.1	226.7
Dec. 1954	220.9	220.6	225.1	226.7	227.3
Jan. 1955	221.0	220.8	224.9	227.0	227.6
	% increase over 1939				
Jan. 1955	156.0	165.7	136.4	133.0	140.3

ST. LOUIS

1930	108.9	108.3	112.4	115.3	111.3
1935	95.1	90.1	104.1	108.3	105.4
1939	110.2	107.0	118.7	119.8	119.0
1946	167.1	167.4	159.1	161.1	158.1
1947	202.4	203.8	183.9	184.2	184.0
1948	227.9	231.2	207.7	210.0	208.1
1949	221.4	220.7	212.8	215.7	213.6
1950	232.8	230.7	221.9	225.3	222.8
1951	252.0	248.3	238.5	240.9	239.0
1952	259.1	253.2	249.7	255.0	249.6
1953	263.4	256.4	259.0	267.6	259.2
1954	264.6	257.9	263.7	273.3	266.2
Nov. 1954	266.2	259.7	265.2	275.0	268.4
Dec. 1954	266.2	259.7	265.3	275.1	268.6
Jan. 1955	266.6	260.2	265.4	275.1	268.7
	% increase over 1939				
Jan. 1955	141.9	143.1	123.5	129.6	125.7

SAN FRANCISCO

1930	90.8	86.8	100.4	104.9	100.4
1935	89.5	84.5	96.4	103.7	99.7
1939	105.6	99.3	117.4	121.9	116.5
1946	159.7	157.5	157.9	159.3	160.0
1947	193.1	191.6	183.7	186.8	186.9
1948	218.9	216.6	208.3	214.7	211.1
1949	213.0	207.1	214.0	219.8	216.1
1950	227.0	223.1	222.4	224.5	222.6
1951	245.2	240.4	239.6	243.1	243.1
1952	250.2	245.0	245.6	248.7	249.6
1953	255.2	257.2	256.6	261.6	259.7
1954	257.4	249.2	264.1	272.5	267.2
Nov. 1954	260.0	252.0	266.0	275.4	269.7
Dec. 1954	260.6	252.6	266.9	276.1	270.6
Jan. 1955	260.8	252.8	267.2	276.3	270.8
	% increase over 1939				
Jan. 1955	146.9	154.5	127.5	126.6	132.4

The index numbers shown are for combined material and labor costs. The indexes for each separate type of construction relate to the United States average for 1926–29 for that particular type — considered 100.

Cost comparisons, as percentage differences for any particular type of construction, are possible between localities, or periods of time within the same city, by dividing the difference between the two index numbers by one of them; i.e.:

index for city A = 110
index for city B = 95

(both indexes must be for the same type of construction).

Then: costs in A are approximately 16 per cent higher than in B.

$$\frac{110-95}{95} = 0.158$$

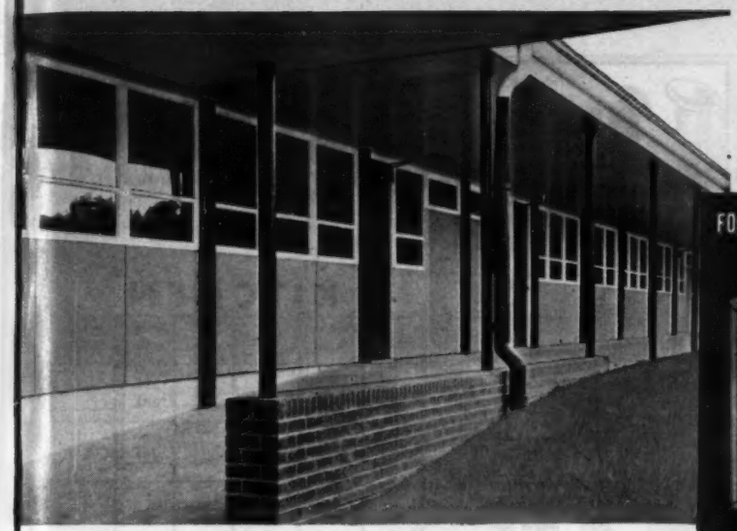
Conversely: costs in B are approximately 14 per cent lower than in A.

$$\frac{110-95}{110} = 0.136$$

Cost comparisons cannot be made between different types of construction because the index numbers for each type relate to a different U. S. average for 1926–29.

Material prices and wage rates used in the current indexes make no allowance for payments in excess of published list prices, thus indexes reflect minimum costs and not necessarily actual costs.

These index numbers will appear regularly on this page.



Beverly Hills School, Concord, N. C. Architect: A. G. Odell, Jr. & Assoc., Charlotte, N. C.

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ABOVE RIGHT, Davidson Type C Double Wall Panel with fiber glass insulation and Vitrock backing.

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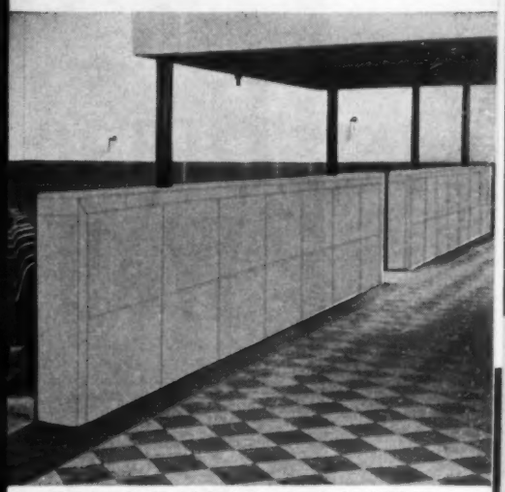

New Cumberland School, New Cumberland, W. Va. Architect: Ray W. Shaw, Weirton, W. Va.

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Mississippi School, St. Paul, Minn. Architect: Walter Butler Co., Inc., St. Paul, Minn.

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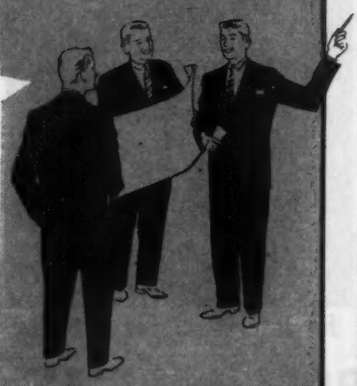

It's a ready check list of typical home wiring loads and circuits!

LOAD AND CIRCUIT

KITCHEN

	Typical Wattage	Preferred Circuit	Volts	Wire	Breaker or Fuse	Number Outlets
RANGE	12000	10 KW.	120/240	3 #6	50A. 60A.	1
OVEN (Built in)	4500	6 KW.	120/240	3 #10	30A.	1
RANGE TOP (Heavy Duty)	6000	6 KW.	120/240	3 #10	30A.	1
RANGE TOP	3300	4 KW.	120/240	3 #12	20A.	1 or more
DISHWASHER	1200	2 KW.	120	2 #12	20A.	1
WASTE DISPOSER	300	2 KW.	120	2 #12	20A.	1
BROILER	1500	2 KW.	120	2 #12	20A.	2 or more
FRYER	1300	2 KW.	120	2 #12	20A.	2 or more
COFFEEMAKER	1000	2 KW.	120	2 #12	20A.	2 or more
REFRIGERATOR	300	2 KW.	120	2 #12	20A.	2
FREEZER	350	2 KW.	120	2 #12	20A.	2

LAUNDRY

	Typical Wattage	Preferred Circuit	Volts	Wire	Breaker or Fuse	Number Outlets
WASHING MACHINE	1200	2 KW.	120	2 #12	20A.	1
DRYER	5000	6 KW.	120/240	3 #10	30A.	1
IRONER	1650	2 KW.	120	2 #12	20A.	1
HAND IRON	1000	2 KW.	120	2 #12	20A.	2 or more
WATER HEATER	3000					

You'll want to post this handy and practical chart on the wall of your office or drafting room. Wherever it's used, you'll find it a valuable check list when you're planning the electrical systems of your homes.

AUTHORITATIVE!

The wiring facts shown by this chart were worked out in collaboration with leading electrical contractors and modern adequate wiring experts. You can be sure of the facts it contains.

Typical loads and circuits for kitchen, laundry, living areas and fixed utilities are shown. Also typical power center and circuit requirements for a six-room house.

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CHART FOR HOME WIRING SYSTEMS

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Typical Outlets	Notes
	Use of more than one outlet is permitted, but not recommended.
	Appliance may be direct connected.
	Appliance may be direct connected.
	These appliances may be direct connected on a single circuit. Grounded receptacles required, otherwise.
	Heavy duty appliances regularly used at one location should have a separate circuit. Only one such unit should be attached to a single circuit at a time.
	Separate circuit serving only refrigerator and freezer is recommended.

	Notes
	Grounding type receptacle required.
	May be direct connected—must be grounded.
	Grounding type receptacle required.
	Consider possible use in other locations.
	Consult Utility Co. for load requirements.

LIVING AREAS

	Typical Wattage	Preferred Circuit	Volts	Wires	Breaker or Fuse	Number Outlets	Typical Outlets	Notes
WORKSHOP	1500	2 KW.	120	2 #12	20A.	2 or more		Separate circuit recommended.
PORTABLE HEATER	1300	2 KW.	120	2 #12	20A.	1		Should not be connected to circuit serving other heavy duty loads.
TELEVISION	300	2 KW.	120	2 #12	20A.	2 or more		Should not be connected to circuit serving appliances.
PORTABLE LIGHTING	1200	2 KW.	120	2 #12	20A.	2 or more		Provide one circuit for each 500 sq. ft. Divided receptacle may be switch controlled.

FIXED UTILITIES

	Typical Wattage	Preferred Circuit	Volts	Wires	Breaker or Fuse	Number Outlets	Typical Outlets	Notes
FIXED LIGHTING	1200	2 KW.	120	2 #12	20A.	2 or more		Provide at least one circuit for each 1200 watts of fixed lighting.
AIR CONDITIONER ¾ H.P.	1200	2 KW.	120	2 #12	20A.	1 or more		Consider 4 kw 3-wire circuits to all window or console type air conditioners. Outlets may then be adapted to individual 120 or 240 volt machines.
AIR CONDITIONER 1½ H.P.	2400	4 KW.	120/240	3 #12	20A.	1 or more		
CENTRAL AIR CONDITIONER	5000	6KW.	120/240					Consult manufacturer for recommended connections.
SUMP PUMP	300	2 KW.	120	2 #12	20A.	1 or more		May be direct connected.
HEATING PLANT	600	2 KW.	120	2 #12	20A.	1		Direct connected. Some local codes require separate circuit.
BATHROOM HEATER	1500	2 KW.	120	2 #12	20A.	1		Direct connected.

TYPICAL POWER CENTER AND CIRCUIT REQUIREMENTS

6 ROOM HOUSE 1500 sq. ft.

30-kw Service	main	100 amp 3w	240/120 volts	Dish Washer	1-2 kw	20 amp 2w	120 volts
10-kw Range	1-10 kw	50 amp 3w	240/120 volts	Oil Burner	1-2 kw	20 amp 2w	120 volts
3-kw Water Htr.	1-6 kw	30 amp 3w	240/120 volts	Freezer-Ref.	1-2 kw	20 amp 2w	120 volts
5-kw Dryer	1-6 kw	30 amp 3w	240/120 volts	Heater	1-2 kw	20 amp 2w	120 volts
1½-hp Cooler	1-6 kw	20 amp 2w	240 volts	T.V.	1-2 kw	20 amp 2w	120 volts
Clothes Washer	1-2 kw	20 amp 2w	120 volts	General Purpose	4-2 kw	20 amp 2w	120 volts
Ironer	1-2 kw	20 amp 2w	120 volts	Portable App.	3-2 kw	20 amp 2w	120 volts

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REQUIRED READING

From Pageant of Japanese Art — Vol. 6

THE LESSON OF JAPANESE ARCHITECTURE. By Jiro Harada. Charles T. Branford, Co. (Boston, Mass.) 1955. 192 pp, illus. $6.50

This is the revised edition of Mr. Harada's original work of 1936 and is a welcome addition to the current flow of books on art and architecture of the Far East. The purpose here is to briefly state the architectural principles involved, their application and evolution in the history of Japanese architecture, and then to give them full meaning to the Western viewer through photographs of the Japanese house as a complete and mature form of architecture.

The text material of this book is refined to less than twenty percent of the total volume but it is a comprehensive statement

Continued on page 48

From The Art and Architecture of Russia

THE ART AND ARCHITECTURE OF RUSSIA. By George Heard Hamilton. Penguin Books (Baltimore, Md.) 1954. 320 pp, illus. $8.50

THE MOSCOW KREMLIN: Its History, Architecture, and Art Treasures. By Arthur Voyce. The University of California Press (Berkeley and Los Angeles) 1954. 147 pp, illus. $10

"I have never heard of nor saw men so sumptuous," said the English Richard Chancellor in 1553, after viewing the army of Ivan the Terrible. "Sumptuous" pretty well describes the art and architecture, particularly the religious art and architecture, of Moscow, Kiev and Novgorod, the cities of ancient Russia. St. Petersburg, founded early in the 18th century by the Europeanized Peter the Great, presents an almost Western aspect in comparison with the older cities, but the architecture is marked with the same vitality that characterizes the medieval buildings farther south.

While much of the building — a large portion of St. Petersburg and much of the Moscow Kremlin — was the work of imported architects (many of them Italian), these transplanted artists seemed to augment but not to change an architecture already based on the early masonry building of Kiev and Novgorod, Russian wooden forms and the art of Byzantium. In Moscow,

Continued on page 48

From L'Habitat au Cameroun

L'HABITAT AU CAMEROUN. Publication de L'Office de la Recherche Scientifique Outre-Mer (20, rue Monsieur, Paris) 1952. 151 pp, illus. $12. (*George Wittenborn & Co., New York — American distributors*)

It is not very often that we think of the tribal architecture of South Africa, much less have the opportunity to study it. *L'Habitat au Cameroun* offers a beautiful presentation of some most unique forms of architecture and city planning.

The Camerouns, located on the Atlantic coast, are part of Equatorial Africa, and are divided into distinct cultural areas by geographical boundaries. The northernmost territory is divided into mountains and arid plains inhabited by aristocratic fair-skinned Moslems who have imposed their law on the native herdsmen. The mountain villages are composed of acorn-like houses constructed of poles with thatched straw roofs arranged in fortified circular groups. Stone walls surround each grouping. The total effect of rich surface patterns and circular planning expresses tremendous vitality. The people of the plain live in these thatched roof huts and in beehive-like huts of baked mud

Continued on page 386

Rolling Steel Doors

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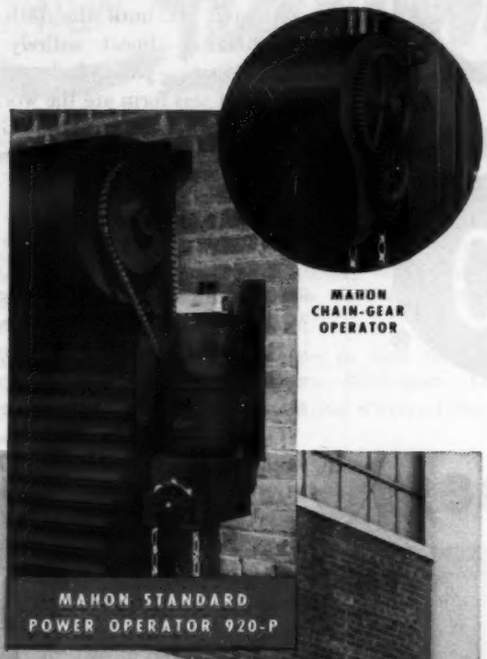


MAHON CHAIN-GEAR OPERATOR

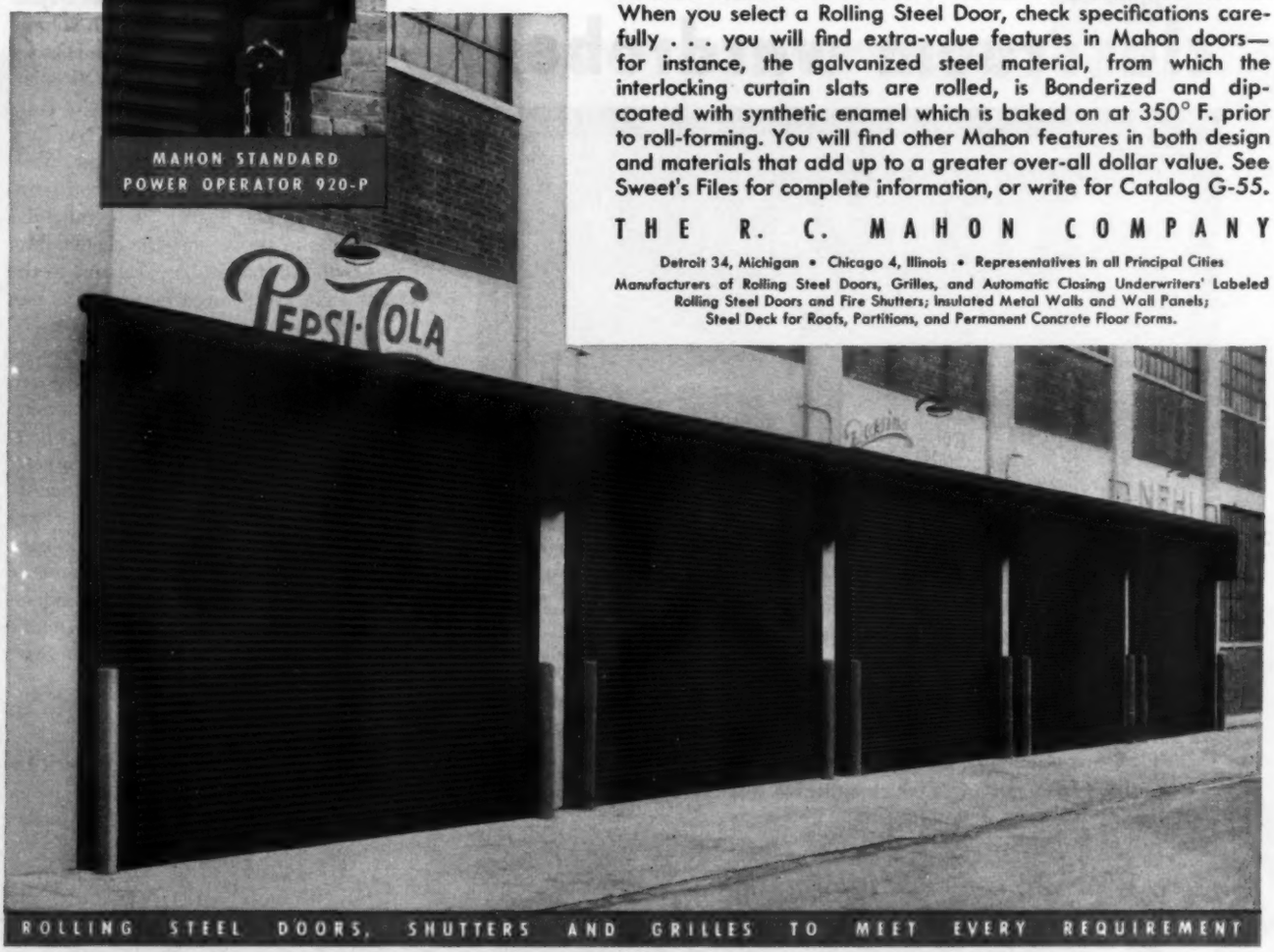
MAHON STANDARD POWER OPERATOR 920-P

Rolling Steel Doors in exterior openings provide greater security than any other type of door. When these doors are closed, their interlocking steel curtains assure maximum protection against both intrusion and fire. In the installation shown below, where five new Mahon Power Operated Rolling Steel Doors provide access to an enclosed loading dock, it is impossible to open any of the doors from the outside. They can be opened only through use of normal operating controls located inside the building. Rolling Steel Doors have many other advantages . . . they are very compact—their vertical roll-up action permits use of floor space to within a few inches of the door curtain on either side. And, there are no overhead tracks or other obstructions to interfere with crane handling adjacent to door openings. A Mahon electrically operated, quick-opening, quick-closing Rolling Steel Door will save valuable space and valuable time in any type of opening. In addition, Mahon Rolling Steel Doors are permanent—their all-metal construction assures a lifetime of trouble-free service. When you select a Rolling Steel Door, check specifications carefully . . . you will find extra-value features in Mahon doors—for instance, the galvanized steel material, from which the interlocking curtain slats are rolled, is Bonderized and dip-coated with synthetic enamel which is baked on at 350° F. prior to roll-forming. You will find other Mahon features in both design and materials that add up to a greater over-all dollar value. See Sweet's Files for complete information, or write for Catalog G-55.

THE R. C. MAHON COMPANY

Detroit 34, Michigan • Chicago 4, Illinois • Representatives in all Principal Cities

Manufacturers of Rolling Steel Doors, Grilles, and Automatic Closing Underwriters' Labeled Rolling Steel Doors and Fire Shutters; Insulated Metal Walls and Wall Panels; Steel Deck for Roofs, Partitions, and Permanent Concrete Floor Forms.



ROLLING STEEL DOORS, SHUTTERS AND GRILLES TO MEET EVERY REQUIREMENT

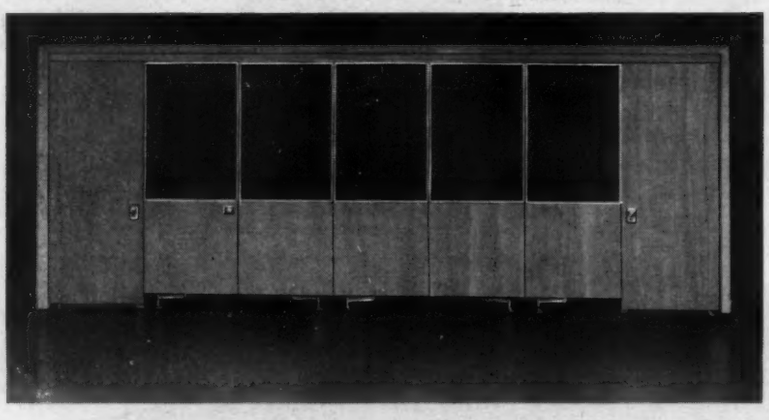
Five of Seven Mahon Power Operated Rolling Steel Doors installed at Dossin's Food Products Plant, Detroit, Michigan. The Five Doors illustrated are in openings to an enclosed loading dock. All seven Mahon Rolling Steel Doors in this plant replaced exterior wooden doors of various types.

MAHON

the answer to wardrobe space + SAFETY + SERVICE

SINCE EMCO 1932

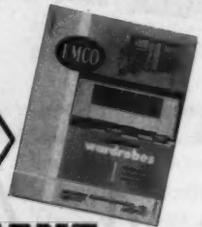
classroom wardrobes



Essentially an Emco wardrobe system gives an attractive well-planned area for storing children's wraps—but more than this, Emco wardrobes are known for their safety and long service. For instance, there are no obstructions to trip a child in the recess . . . no overhead weights to fall . . . doors latch open with plenty of space between so hands cannot be pinched . . . and proper ventilation around garments is assured by exclusive hook arrangements. Finally, Emco hardware is better designed and made of materials which will give service for the life of the school building.

Write for complete information

The new Emco catalog gives you complete specifications on the complete line of Emco wardrobes and accessories. Write for your free copy today.



WARDROBES ARE OUR BUSINESS NOT A SIDELINE

EQUIPMENT Manufacturing Co., INC.

1400 Spruce St., Dept. AR, Kansas City, Mo.

REQUIRED READING

(*Continued from page 46*)

which always remained the religious capital of the country, European architects were of course required to adopt the church form prescribed by the Orthodox Church.

Russian art until the 18th century concentrated almost entirely on the painted icon — particularly exciting examples of this form are the works of the 14th century Theophanes the Greek and the 15th century Andrei Rublev. In the realm of the decorative arts, the love of early Russian princes for dazzling colors and jewels produced resplendent ecclesiastical and royal regalia. That this fondness for splendor has endured is exhibited by a room like St. George's Hall in the Grand Kremlin Palace, built in the mid-19th century and just recently refurbished by the Soviet government.

George Heard Hamilton's *The Art and Architecture of Russia* is the fifth volume in Nikolaus Pevsner's Pelican History of Art. Covering the history of Russian architecture from the beginning of Russian Christianity in the 10th century until the 1917 revolution, the book shows the results of a very elaborate research job. The history, unfortunately, never quite transcends the scholarship, a situation attributable, perhaps, to the fact that Mr. Hamilton, as far as can be gathered, has never visited Russia. If the book sometimes seems rather heavy going, however, it must be stated in fairness to the author that he intended no panegyric to Russian art, but rather a compact review of the facts of the case.

Arthur Voyce's *The Moscow Kremlin: Its History, Architecture, and Art Treasures* seems a livelier account, due in part, no doubt, to the more limited frame in which the author has worked; and his personal acquaintance with the Kremlin allows him to write about it in three dimensions, so to speak.

The illustrations in both books are generous and seem particularly excellent in view of the problems with which the authors must have had to deal in assembling them. **Grace M. Anderson**

JAPANESE ARCHITECTURE

(*Continued from page 46*)

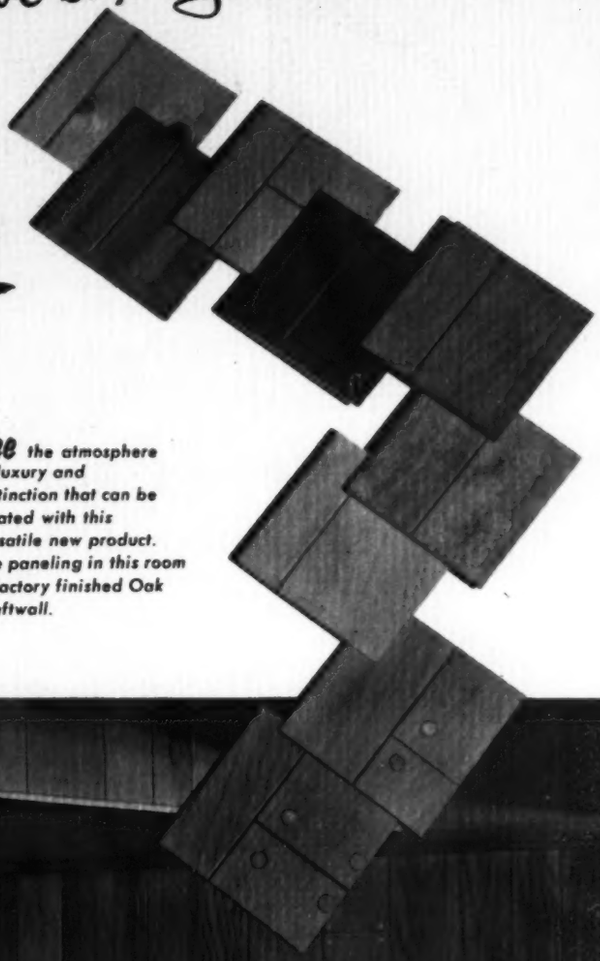
of the universal principles we admire in Japanese architectural expression and seek to use in our own. The remainder of the book is filled with large photographs and illustrations demonstrating

(*Continued on page 382*)

Gentlemen! HERE'S exclusive luxury and distinction

NEW Craftwall

FACTORY FINISHED PANELING



Ready to help step up property values — and hold down completion costs — Craftwall plywood paneling makes a hit with your customers. It adds that extra quality touch that makes any building more valuable and saleable. And installation is easy. No messy finishing on the job.

Factory finished Craftwall is yours in four distinctive styles . . . nine handsome woods: *Cherry, Mahogany, Oak, Birch, Maple, Elm, Walnut, Blonde Limba and Knotty Pine* — all durably craft-finished at the factory.

***See** the atmosphere of luxury and distinction that can be created with this versatile new product. The paneling in this room is factory finished Oak Craftwall.*

TURN PAGE TO SEE HOW Craftwall WILL WORK FOR YOU

Style 100 is
V-grooved only

Style 200 is
V-grooved and cross-scored

Style 300 is
V-grooved, cross-scored and pegged

Style 400 has
matching V-groove for horizontal installation

4 styles, Gentlemen!

Unlimited design opportunity with new Craftwall

FACTORY FINISHED PANELING

High, wide and Handsome

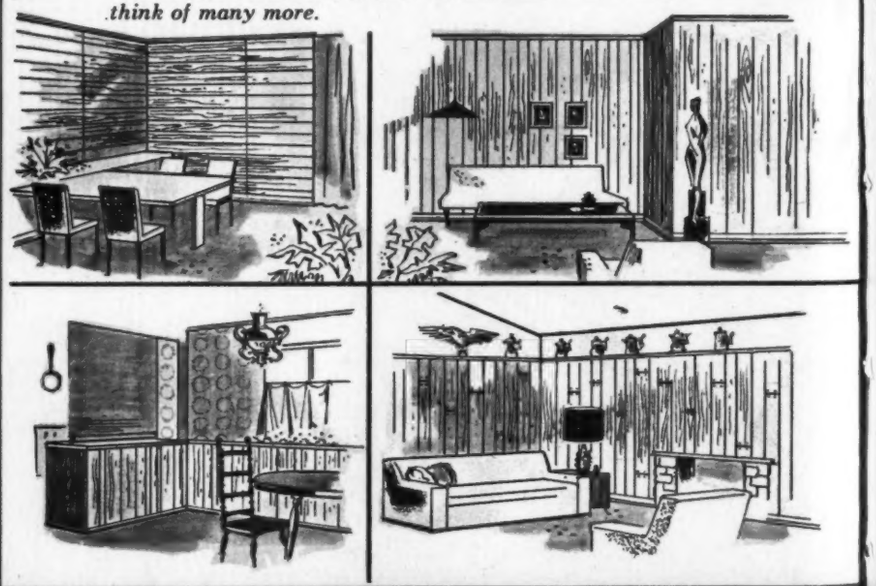
— Large 48" x 96" x ¼" Craftwall panels promote fast, easy, low-cost installation. Also available in 16" x 96" and 32" x 64" panels for design flexibility.

Durable Factory Finish Shrugs Off Punishment. Easy cleaning... ever-bright!

Craftwall beauty endures virtually forever, because Roddiscraft Factory finishing provides extra long life protection. This exclusive finish is immune to dirt, grease, inks and ordinary chemicals . . . won't craze, chip or crack. Just a wipe with a damp cloth removes smudges and spots . . . Cuts cleaning time in homes and offices.

The nine beautiful Craftwall woods are *all* available in the four styles shown above. These are styles that cater to the creative ideas of builders and architects as well as their customers. Design opportunities are endless.

Sketches illustrate just four treatments. You'll surely think of many more.



Mail this coupon for all the facts about new Roddiscraft building products!

RODDISCRAFT, Roddis Plywood Corp.
Marshfield, Wisconsin

Tell me more about how I can profit with new factory finished Craftwall hardwood plywood paneling.

Name .....

Firm .....

Address .....

City .....Zone ....State .....

COMPLETE THE WHOLE JOB WITH RODDISCRAFT — Our full-job *package* eliminates any need to depend on other sources. We give you hardwood molding and trim — in both contemporary and traditional styles — specifically designed to go with Craftwall paneling. And to color-match this trim to factory finished Craftwall paneling, we offer new Roddiscraft wood finishes in all nine Craftwall wood tones.

Roddiscraft

RODDIS PLYWOOD CORPORATION
MARSHFIELD, WISCONSIN
WAREHOUSES IN PRINCIPAL CITIES

old

State Architect: **Anson Boyd**

Construction Supervisor: **Orvel B. Johnson**

In restoring a Wells-Fargo office in historic gold rush country, the California State Division of Architecture had a silicone-based water repellent applied to protect and preserve the original soft brick from further wear.

WATER REPELLENT:
DARACONE, BY DEWEY & ALMY CHEMICAL CO.

or
new

Architect: **Franz & Spence**

Contractor: **Spence Brothers**

To eliminate moisture penetration and minimize future maintenance costs, a water repellent treatment made with Dow Corning Silicones was specified for the brick and concrete exterior of the new East Side High School in Saginaw, Michigan.

WATER REPELLENT: DRI-KOTE, BY SAGINAW PAINT MFG. CO.

Specify water repellent treatments made with

Dow Corning Silicones

to keep masonry walls beautiful at low cost

On new construction or restorations, architects and contractors agree: a water repellent treatment based on Dow Corning Silicones makes above-grade masonry walls more weatherproof and preserves their original beauty. Completely invisible and non-plugging, silicones do not change the color or porosity of treated masonry. Water washes dirt off, not into, the surface. Staining, streaking, spalling and efflorescence are minimized or eliminated entirely. Treatment costs surprisingly little; remains effective for years.

Dow Corning silicone-based water repellents are now available from formulators and their distributors in every part of the country. Write Dept. 0504 for more information and a list of suppliers. Dow Corning Corporation, Midland, Michigan.

DOW CORNING
SILICONES

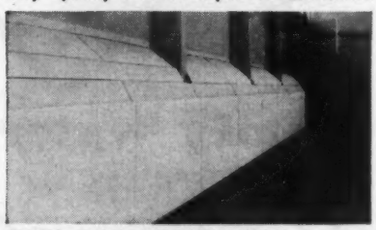
With only 25 moving parts...

EASIER SWEEPING

Under structure is simple and uncluttered—makes "after game" clean-up quick and easy—plenty of room to push a floor brush.

AMWELD® *EASI-FOLD* is a *SAFER* bleacher!

You can make your next school job absolutely safe with Amweld Easi-Fold Bleachers. A triumph of engineering skill, these folding bleachers cannot collapse. Open supports are braced and locked — cannot fold in use. Special design eliminates danger of pinched fingers or legs.

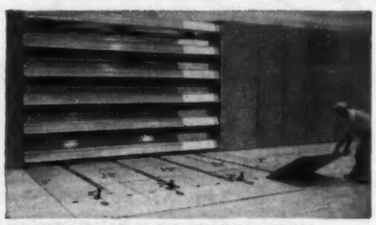


FOLDS FLAT AGAINST WALL

When not in use, Amweld Easi-Fold Bleachers fold up—out of the way—yield an extra bonus in usable floor space.

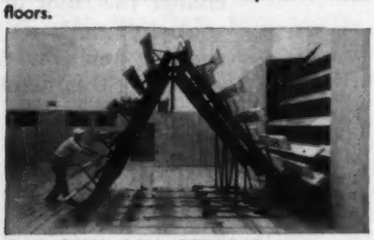
SEND FOR INFORMATION

Amweld Easi-Fold Bleachers are ideal for all indoor spectator seating. Write for details today or see our catalog in Sweets' Architectural File No. 22.



COMPLETE FLOOR PROTECTION

Floor protected when Bleacher is opened. Casters and vertical supports rest on protective cover—cannot mar expensive wood floors.



ONE MAN CAN OPERATE

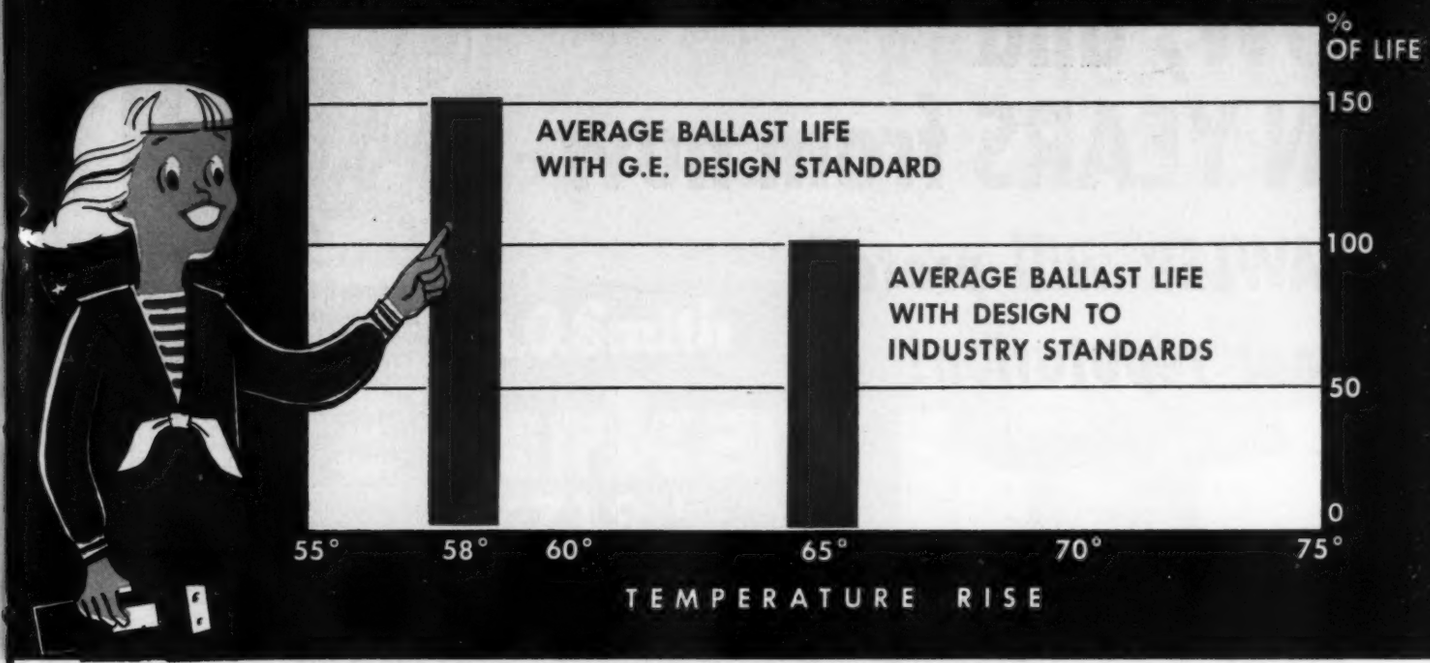
Easi-Fold Bleachers roll out smoothly—are perfectly balanced for easy one-man opening and closing.

INSTITUTIONAL PRODUCTS DIVISION

THE AMERICAN WELDING AND MANUFACTURING COMPANY

340 DIETZ ROAD • WARREN, OHIO

G.E. gives you 50% more ballast life by designing 10% cooler than industry standards



BECAUSE G-E BALLASTS ARE engineered to operate 10% cooler than industry standards, they offer 50% longer life in your fluorescent installation. With this chart, Flora shows you the extra ballast life you get when you specify General Electric's cooler operating ballasts.

Flora* shows you why . . .

General Electric Ballasts Last 50% Longer, Help You Save Lighting Dollars

Every G-E ballast is designed to operate 10% cooler than industry standards; the chart above shows that this means 50% longer ballast life! To you, this means longer life for your fluorescent installations and a real saving in lighting dollars.

By carefully filling each ballast with a special heat-conducting compound, and by using larger wire size in the coil windings than would be required simply to meet industry standards, G.E. builds ballasts that operate cooler! Cooler operating temperatures combined with the use of unusually strong insulating materials results in years of added ballast life.

These special G-E techniques contribute toward lower operating temperatures, resulting in 50% longer ballast life.

Next time you specify equipment for a fluorescent lighting installation, make sure you get the best . . . specify General Electric longer-life ballasts.

A G-E ballast tag or sticker on your fixture is proof that it's equipped with a superior ballast; G-E ballasts in your installation mean better, more efficient lighting, more economical operation. For further information on G-E ballasts, write Section 401-10, General Electric Company, Schenectady 5, New York.

*Miss Fluorescent Ballast, G.E.'s Ballast Mascot

Copyright 1955, General Electric Company

G-E BALLASTS ARE constantly spot-checked for normal or abnormal temperature rise in this special lab. Close control of temperature rise helps assure 50% longer G-E ballast life.

Five more reasons why

GENERAL ELECTRIC IS YOUR BEST BALLAST VALUE

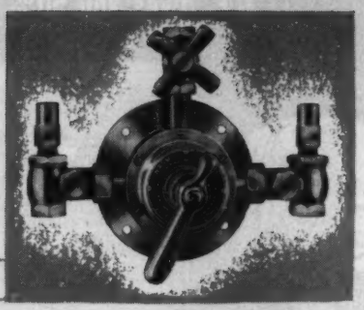
- **EXCLUSIVE SOUND RATING SYSTEM**
- **SUPERIOR QUALITY CONTROL**
- **PRECISE LAMP-MATCHED DESIGN**
- **PROVED PRODUCT LEADERSHIP**
- **COMPLETE CUSTOMER SERVICES**

Progress Is Our Most Important Product

GENERAL ELECTRIC

NOW, and TEN YEARS from now–

LAWLER will protect your reputation!



Model BE Exposed

. . . thermostatic shower mixing valve. Finished in polished chrome . . . equal in construction and design with the BC Concealed.

MODEL BC CONCEALED THERMOSTATIC SHOWER MIXING VALVE

Finished in polished chrome where exposed, has all sliding parts of stainless steel for corrosion proof operation. Actual tests show that it gives highest degree of control.

Lawler's "Performance-Tested" design combines pioneering experience with engineering leadership. The use of specially chosen metals assure YOUR customers years of positive, accurate temperature control with lowest maintenance cost . . . the best insurance YOUR REPUTATION can have.

"Performance Tested" for Longer Life

The Lawler Line **of Thermostatic Controls**

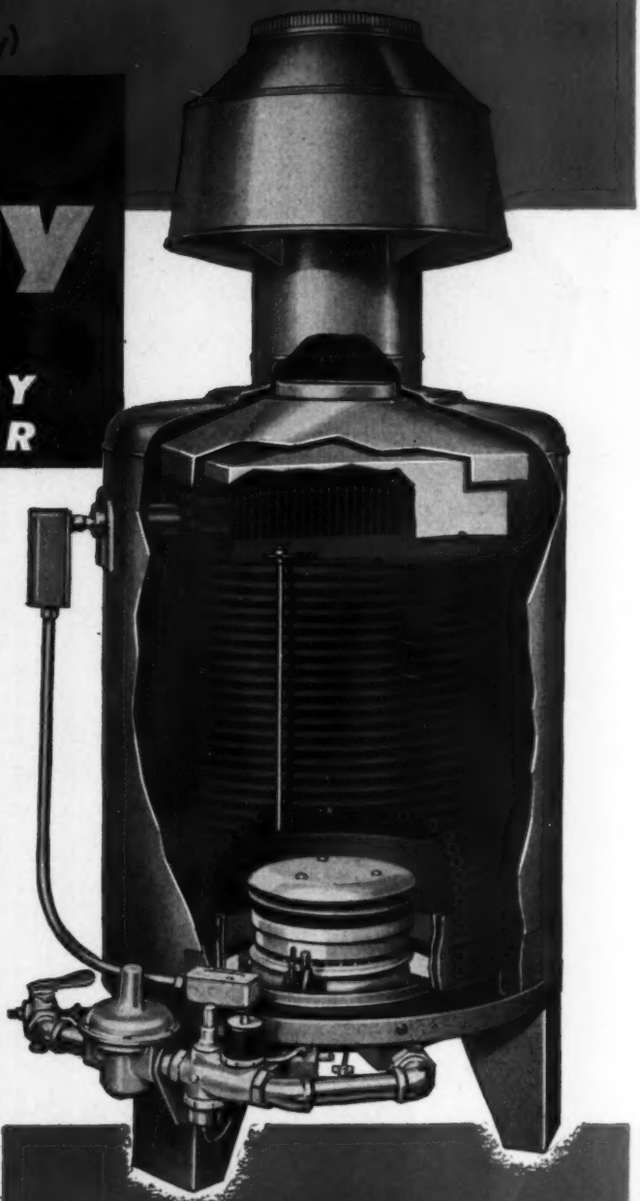
LAWLER AUTOMATIC CONTROLS, INC. 453 North MacQuesten Parkway, Mount Vernon, N. Y.

NEW WATER HEATER FOR THE BIG JOBS!

(Something New in Burkay)

A.O.Smith Burkay "718"

HIGH RECOVERY WATER HEATER



Now in one compact package—the gas-fired water heater of the Industry—the New A. O. Smith Burkay "718": 403 gallons per hour at 100-degree temperature rise, 420,000 BTU per hour—twice the size of former models! Here is a *big* heater for your big jobs. It opens the door to many new applications for commercial water heating. A real opportunity for you to include this outstanding water heater in your new commercial and industrial building designs. The "718" is another quality product of A. O. Smith research . . . fully guaranteed. It is ideal for large restaurants, laundries, apartment buildings, swimming pools, industrial plants, and a host of other places.

The Burkay "718" has a lot to offer, unmatched in the trade—a water heater with twice the capacity of former models, thereby reducing the expense of multiple heater connections; especially designed as a straight Recovery Heater and for the patented A. O. Smith Booster-Recovery Two-Temperature System. It incorporates in its design the time-tested, exclusive, plus features found in other A. O. Smith Burkay heaters—copper construction for clean, rust-free hot water; sturdily designed for long, service-free life; patented burner, and the special heat exchanger for remarkable operating economy and instant heat response to hot water demands.

It will pay you to see this outstanding new addition at your A. O. Smith distributor or write for full details.

"Plenty of Hot Water Pays All Ways"

Investigate, today, the many advantages of the "Gas Way" to heat water more quickly with this clean, economical fuel!

Through research ...a better way

A.O.Smith

CORPORATION

PERMAGLAS DIVISION • KANKAKEE, ILLINOIS

WRITE, TODAY, FOR FULL DETAILS

about the new

A. O. Smith Burkay "718" Water Heater

A. O. SMITH CORPORATION
Permaglas Division, Kankakee, Illinois, ARCH R, 4-55
Gentlemen: Please send me, today, full details on the "718."

Name.....Title.....

Company.....

Address.....

City.....Zone....State.....

Pella®

WOOD FOLDING DOORS

So Distinctive! Pella Mahogany Folding Doors . . . at New Savings

PELLA WOOD FOLDING DOORS of beautiful, rich-grained Philippine mahogany are now available for your use . . . at savings up to 31%! New manufacturing methods, with increased production, make this price reduction possible on Pella Mahogany Doors.

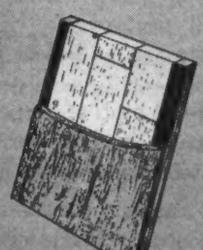
Specify PELLA WOOD FOLDING DOORS as folding partitions, closet closures and for regular openings in homes. Use them to create double-purpose rooms in schools, churches, hotels, clubs and other buildings. Pella Doors fold compactly against door jambs or walls. Every inch of floor and wall space can be used.

PELLA WOOD FOLDING DOORS are available in mahogany, pine, oak or birch . . . finished or unfinished. They are packaged, complete with all hardware and concealing track mould. No costly fitting on the job. Send for sample of laminated mahogany Pella Door Panel today. See our catalog in Sweet's or mail coupon below for FREE cut-a-way section of a Pella Door Panel.

ROLSCREEN COMPANY, Dept. G-4, PELLA, IOWA.

Pella®

WOOD FOLDING DOORS



CLIP AND MAIL TODAY!

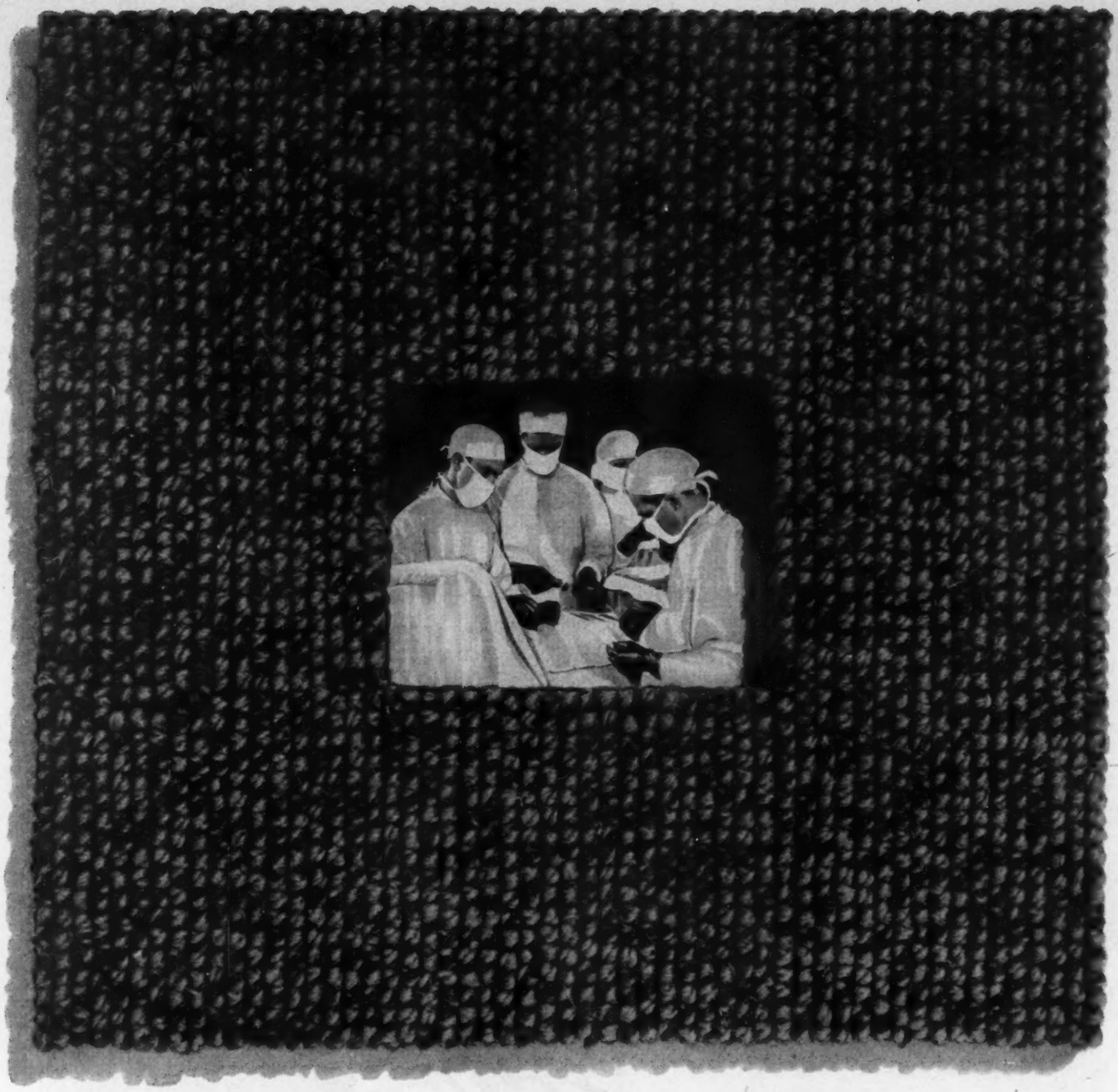
ROLSCREEN COMPANY, Dept. G-4,
PELLA, IOWA

GENTLEMEN: Please send FREE sample of laminated mahogany Pella Door Panel and literature on Pella Wood Folding Doors.

NAME _____

ADDRESS _____

CITY & ZONE _____ STATE _____



Carpet's most successful operation!

A burned-out gash of carpet! Then the tedious, costly job of repair...and the permanent "scar" left by binding or stitched seams!

Some years ago, that was all the hope there was for damaged carpet. Then — Bigelow took the case.

Bigelow made test, after test, after test. Finally, the best means of locking in every tuft was discovered—the now famous *Lokweave*® process! Carpet now defied unraveling. For the first time, it was possible to "graft" a piece of carpet into a damaged section *without leaving that ugly scar!*

In Lokweave, carpet's most successful operation, you see another good reason why Bigelow is the number one choice of architects.

Lokweave comes in a wide range of attractive patterns and colors. For information write to Bigelow Contract Dept., 140 Madison Ave., New York 16, N. Y.

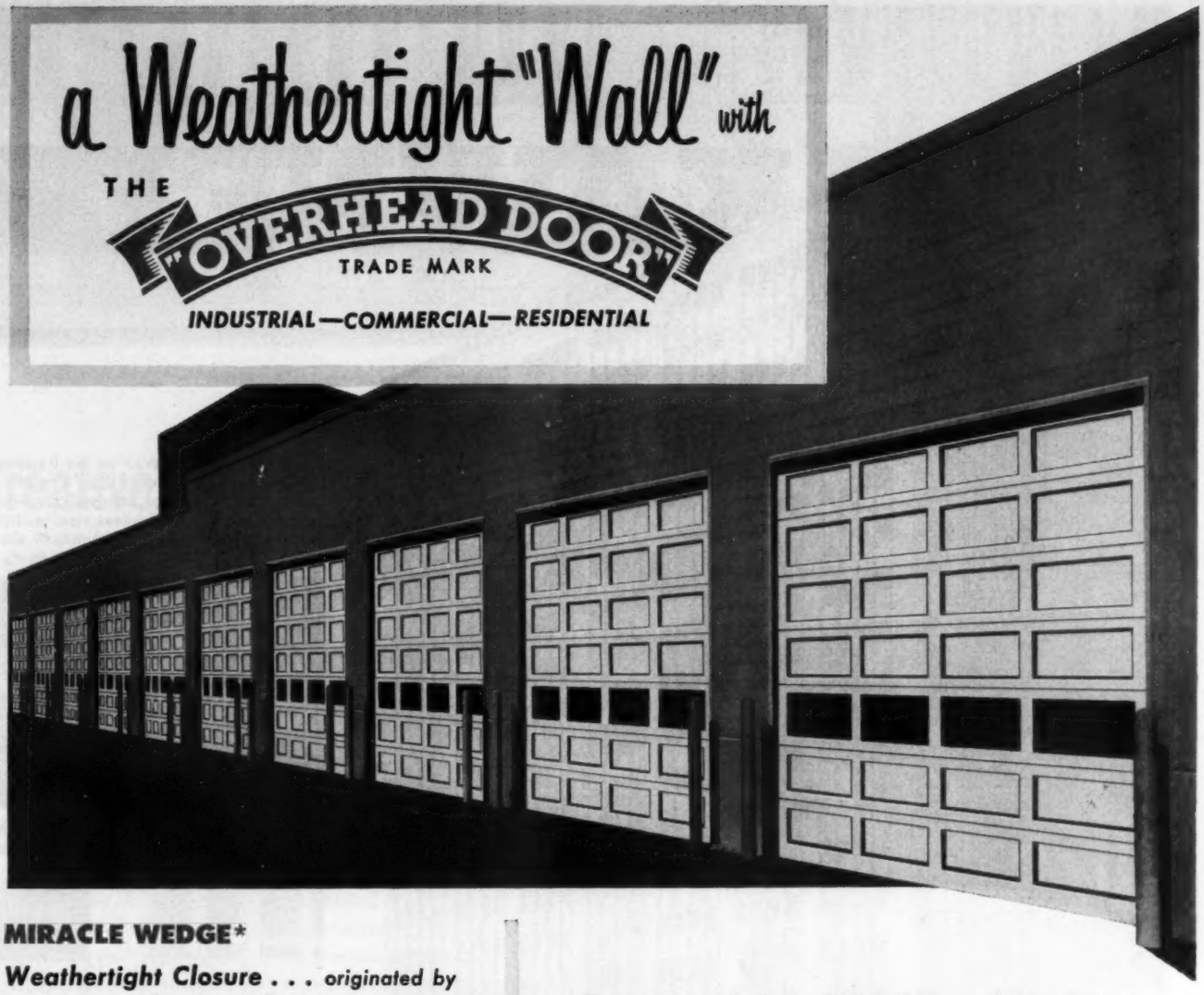
see our catalog in SWEET'S ARCHITECTURAL FILE or write for copy

Bigelow — SINCE 1825 BIGELOW Rugs – Carpets — Number 1 name in Carpets

a Weathertight "Wall" with

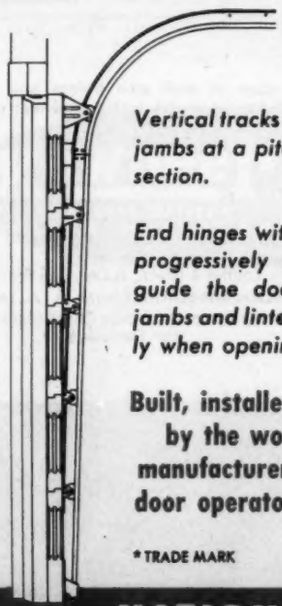
THE "OVERHEAD DOOR" TRADE MARK

INDUSTRIAL—COMMERCIAL—RESIDENTIAL



MIRACLE WEDGE*

Weathertight Closure . . . *originated by Overhead Door Corporation in 1921, this feature is the basis of construction of every door, from the smallest residential garage door to the largest industrial door.*



Vertical tracks incline away from jambs at a pitch of ¼" per door section.

End hinges with roller sleeves of progressively graduated height guide the door tightly against jambs and lintel, yet free it quickly when opening.

Built, installed and serviced by the world's largest manufacturer of doors and door operators exclusively!

*TRADE MARK

For easy solution of heating problems, employee protection, traffic speed-up and lasting satisfaction under constant hard use, insist upon The "OVERHEAD DOOR," first and finest in its field. This quality door is built of wood, steel or aluminum in any size to fit the opening . . . a "custom" door at production line prices. Consult our engineering and research staff about unusual installation problems.

Equip All Doors with

ELECTRIC OPERATORS

and Remote Control

Electric operation from a centralized control board pays for itself in man-hours saved. It lengthens the life of the doors because they move at a steady speed proper for their size and weight, without sudden strains.

OVERHEAD DOOR CORPORATION

Hartford City, Indiana

America's Great Name in QUALITY DOORS...

MANUFACTURING DIVISIONS:
HILLSIDE, N.J. CORTLAND, N.Y.
NASHUA, N.H. LEWISTOWN, PA. OKLAHOMA CITY
DALLAS, TEX. PORTLAND, ORE.

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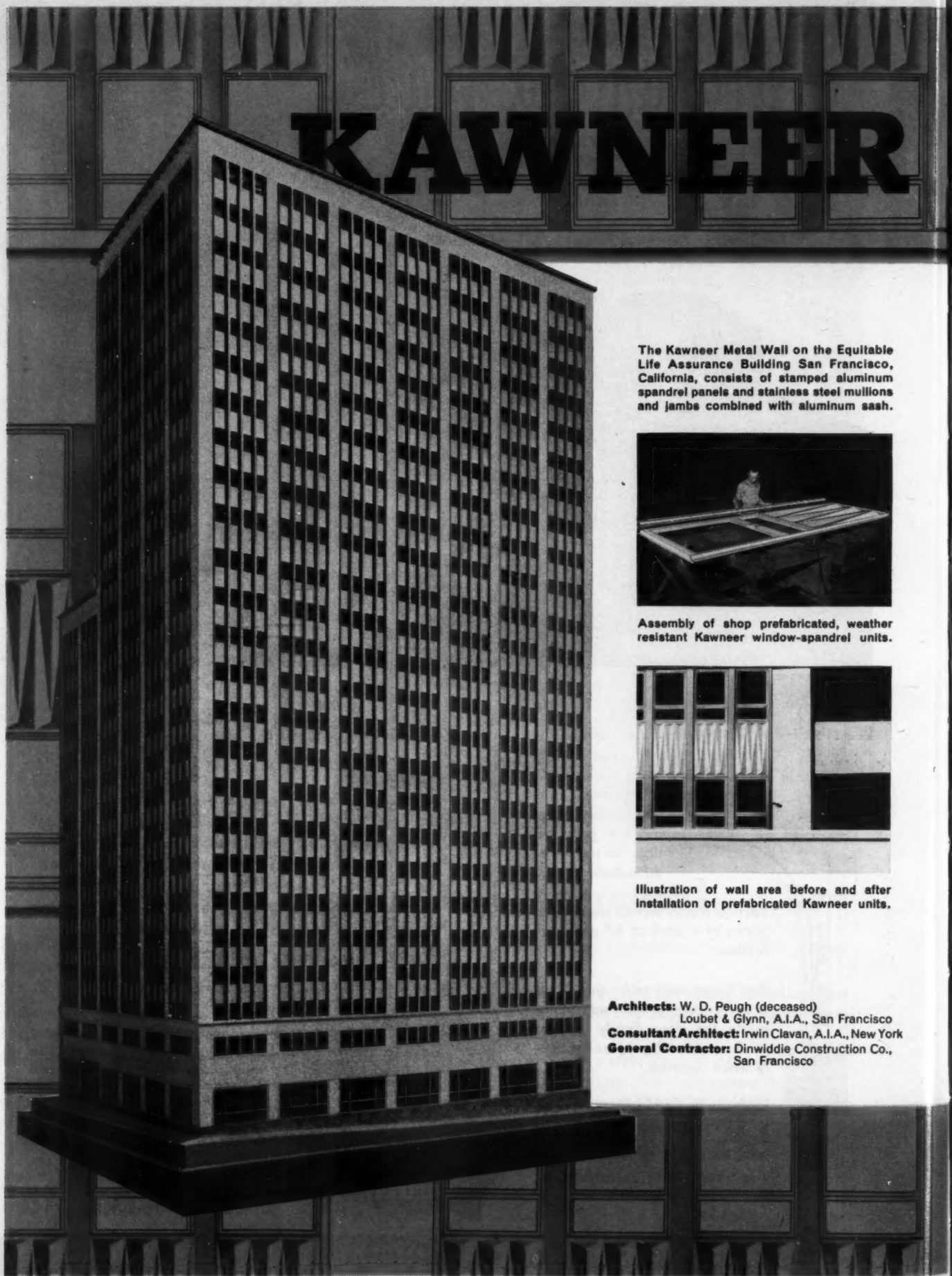
NATION-WIDE SALES • INSTALLATION • SERVICE

KAWNEER



The Kawneer Metal Wall on the Equitable Life Assurance Building San Francisco, California, consists of stamped aluminum spandrel panels and stainless steel mullions and jambs combined with aluminum sash.

Assembly of shop prefabricated, weather resistant Kawneer window-spandrel units.

Illustration of wall area before and after installation of prefabricated Kawneer units.

Architects: W. D. Peugh (deceased)
Loubet & Glynn, A.I.A., San Francisco
Consultant Architect: Irwin Clavan, A.I.A., New York
General Contractor: Dinwiddie Construction Co., San Francisco

METAL WALL

Creative engineering experience assures true expression of your design

Kawneer has been working hand-in-hand with architects and builders for nearly 50 years in the development, engineering and production of architectural metals. The creative engineering ability (The "Kawneer Touch") coupled with years of production experience has made Kawneer the pioneer in aluminum *window and spandrel products*. Now, due to expanded production capacity and demand Kawneer has developed a *special* metal wall department. Production and engineering facilities have been organized to manufacture windows, spandrels, mullions and jambs in any metal and finish and to any design, economically and in any quantity desired, with special weather and waterproof features.

For personal assistance from Kawneer's metal wall engineers, just phone, wire or write.

Outstanding Kawneer Curtain Wall Jobs

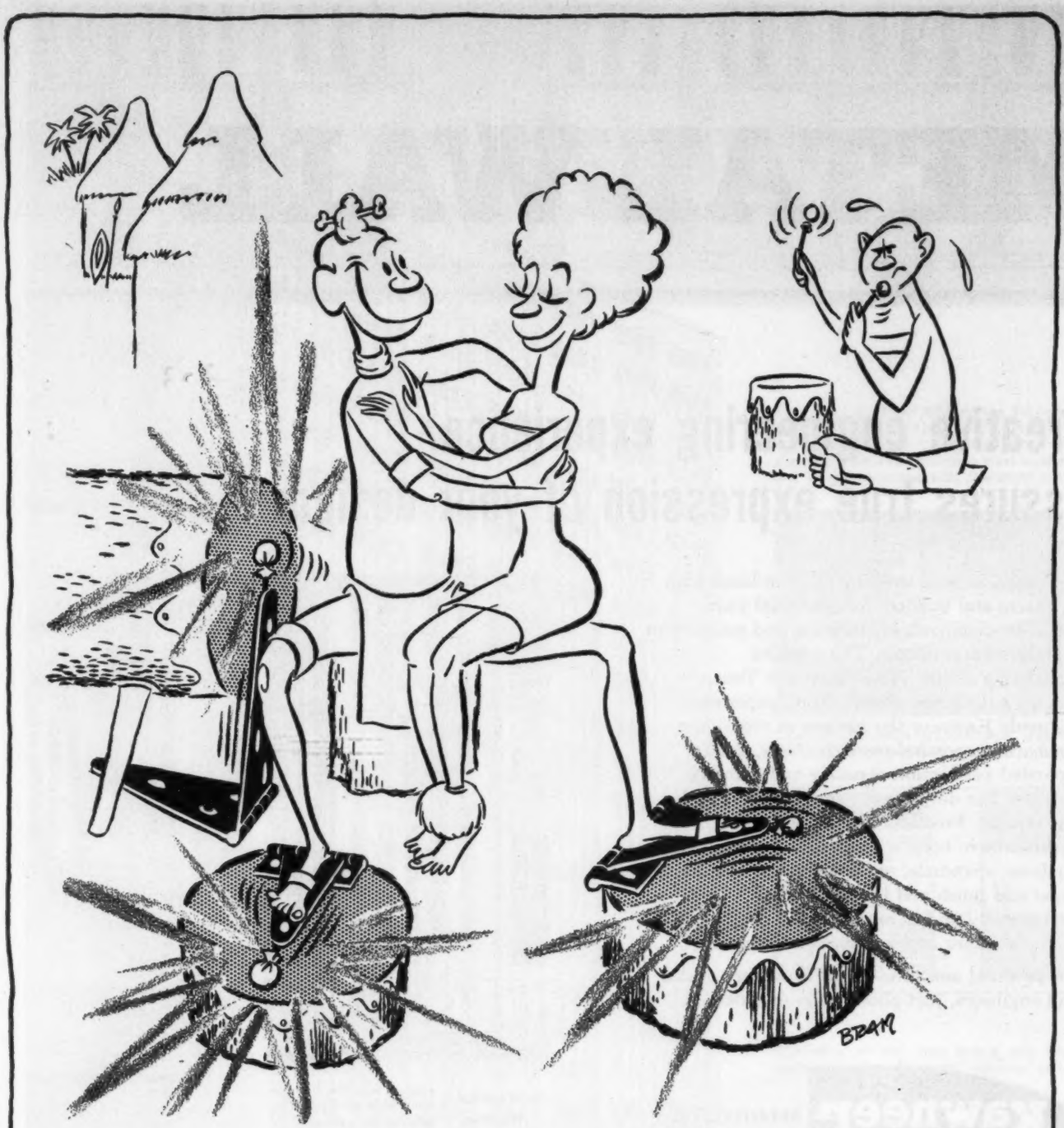
1931—St. Paul City Hall and Court House (photo above)

1933—Mellon Institute of Industrial Research

1933—Boulder Dam Power Houses and Towers

Kawneer
General Offices
NILES, MICHIGAN

ARCHITECTURAL PRODUCTS DIVISION



"EVERYTHING HINGES ON HAGER!"*

HAGER HINGES *®

C. Hager & Sons Hinge Mfg. Co. • 139 Victor Street • St. Louis 4, Mo.
Founded 1849—Every Hager Hinge Swings on 100 Years of Experience

FOLLOWS CEILING CONTOUR. Because this material is sprayed on, original ceiling designs are retained without change, as the courtroom shown above demonstrates.

Keep sound under control with Sprayed "LIMPET" Asbestos!

In courtroom, restaurant or office, Sprayed "Limpet" Asbestos really does a job of controlling sound. It works two ways: (1) It traps and dissipates sound waves through absorption in the millions of pores. (2) Its surface yields with sound waves reducing their intensity through diaphragmatic action.

VALUABLE INSULATOR. Fuel savings have amounted to as much as 50% when Sprayed "Limpet" Asbestos was applied on thin, single-layer roofs. Heated air can't leak out through this seamless insulation blanket. Cold air can't seep in through it.

FACILITATES DECORATING. The evenly textured, seamless blanket of Sprayed "Limpet" Asbestos forms a perfect base for decorative painting. Murals and stencil designs can be spray-painted where this material has been applied.

TAKES IRREGULARITIES IN STRIDE. Because it's sprayed on, you can specify it for all sorts of irregular ceilings and sidewalls. It's ideal for boiler rooms and other places where pipes, conduits; ducts, and hangers obstruct ceilings. There is no cutting or fitting required. No mechanical systems or gadgets needed for application.

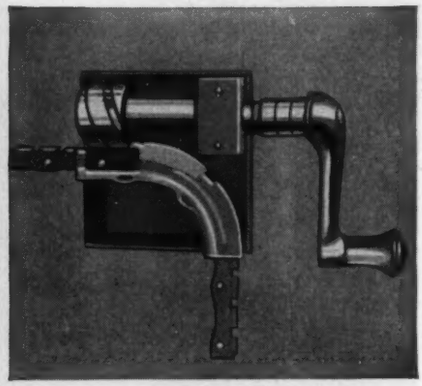
OTHER ADVANTAGES. Sprayed "Limpet" Asbestos can be applied over any surface. It is light in weight, highly fire-resistant and won't attract or harbor vermin. Its efficiency has been proved in applications all over the world.

FREE FOLDER. Write today for free folder on this outstanding acoustical control material.

KEASBEY & MATTISON
COMPANY • AMBLER • PENNSYLVANIA

K&M best in asbestos

Easier to open and close—Silentite adjuster has fifteen times the operating force of the ordinary casement adjuster.



Silentite Adjuster, with housing plate removed, showing rugged construction and positive operation.

See your Curtis Woodwork Dealer and consult Sweet's Architectural Catalog for full details about the many types and styles of Silentite windows—including double-hung, casement, convertible, awning and panel windows. Literature upon request. Curtis Companies Service Bureau, Clinton, Iowa.

What Careful Parents Can Tell You About Curtis Silentite Casement Safety

Greater security—peace of mind—for the homeowner. That's a major reason for choosing Curtis Silentite casements for the homes you build or plan. The patented operating mechanism locks these wood casements securely in any position. With the handle removed, the casements can be left partly open for ventilation, yet cannot be moved by young children.

Homeowners get many other special advantages from these superior casements. Sash won't swing or rattle in the wind. Glass is easily washed from the inside. Curtis casements are up to 16% more weather-tight than ordinary casements. Available as complete units with hardware, screen and insulating glass, Curtis Silentite casements are made in many beautiful sash styles.

CURTIS WOODWORK

Heart of the Home

CURTIS WOODWORK SILENTITE PAK-FIT the Insulated window

NOW...

the water heater that revolutionized an industry

does it again...

Permaglas®

America's leading glass-lined water heater

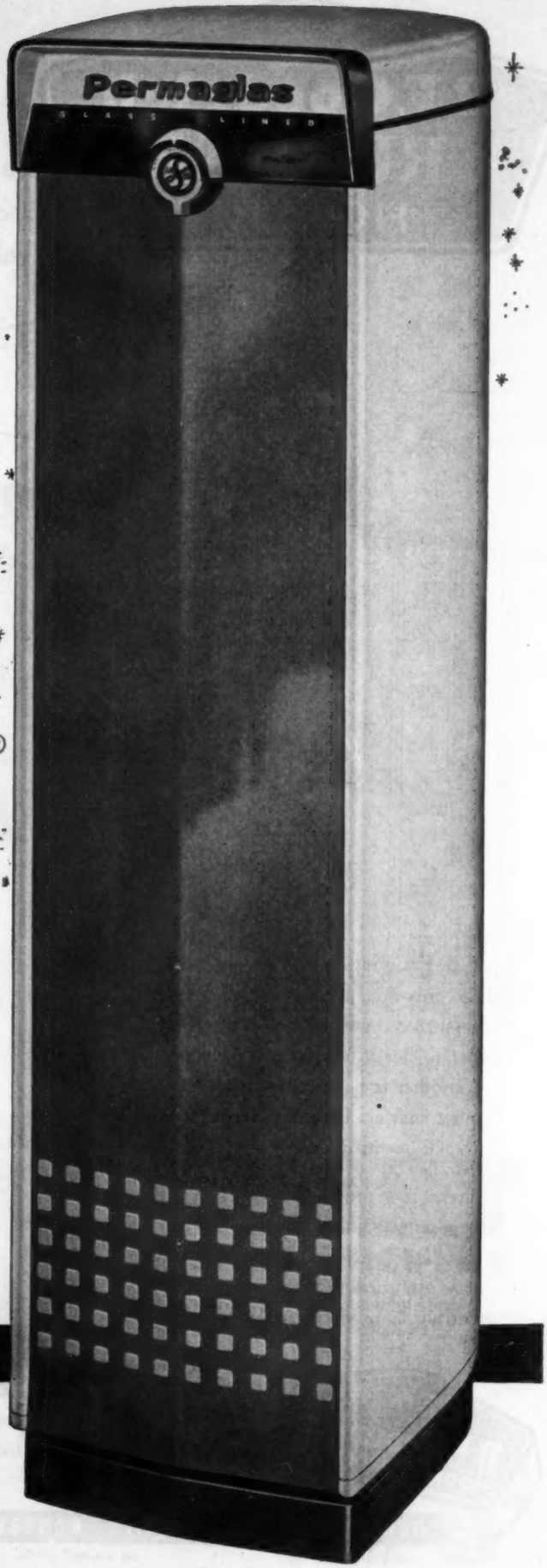
Now . . . America's *first* stylized water heater—*in color.*

Plus . . . America's *first* "Eye-Hi" temperature control.

Plus . . . famous exclusive *HEETWALL* design—*and* higher inputs.

And . . . the *only* glass-lined tank proved by over 2,500,000 families.

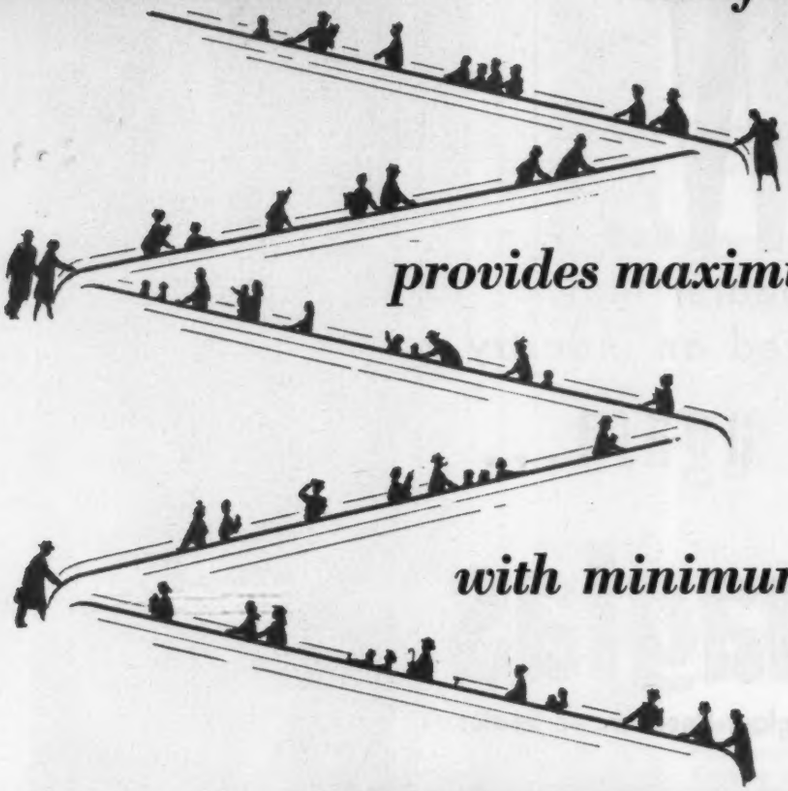
All this in the *most accepted, most popular,* glass-lined water heater in the industry!



A.O.Smith

B.F.Goodrich RUBBER FLOOR TILE

assures client satisfaction...



provides maximum wear...

with minimum care... always!

B. F. Goodrich Rubber Floor Tile is the only floor tile with *Super-Density*, no surface pores to collect dirt — easier to clean. *Natural Resiliency*, another important feature, assures quiet comfort underfoot. Available in 26 beautiful colors.

Send today for handy B. F. Goodrich *Floor Design Folder* — shows how to make floor designs that direct traffic, draw attention to specific areas, create an atmosphere of spaciousness, etc.

See Sweet's for specifications or *write Dept. AR4.*
B. F. Goodrich Co., Flooring Division, Watertown 72, Mass.

B.F.Goodrich FLOORING PRODUCTS

RUBBER TILE • ASPHALT TILE • KOROSEAL TILE • RUBBER COVE BASE • ACCESSORIES

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STEEL LOCKERS

Equipped with a new type locking mechanism—*Positive-Locking—Pre-Latching—Fool-Proof and Pilfer-Proof.*

The **ONLY** locker with all the perfected features essential for maximum protection, long service and minimum maintenance.

LOCKERS in all standard types and sizes, recessed and free-standing

BASKET SHELVING, permanent and portable, in all popular sizes.

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SPECIFY the best, then INSIST on it!

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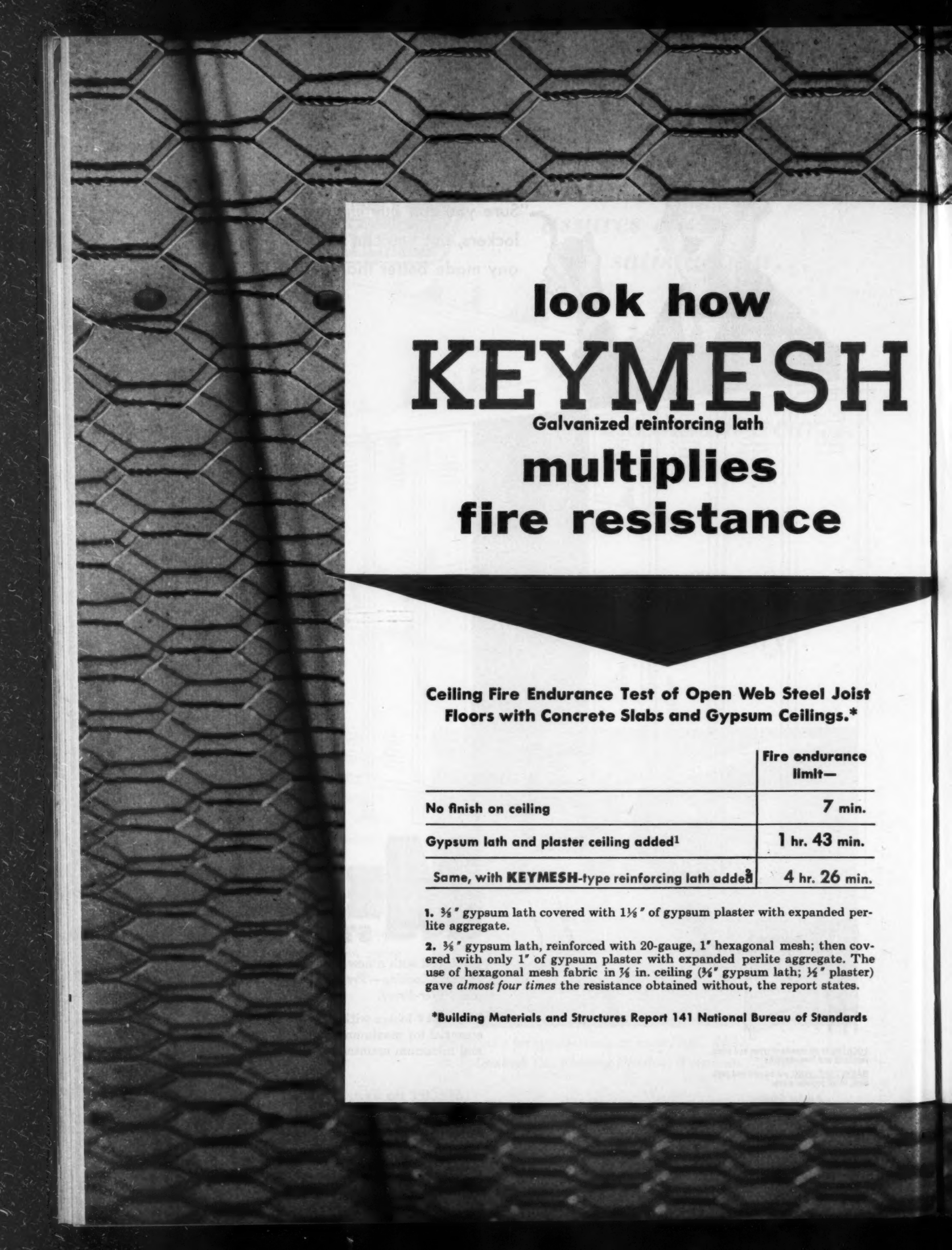


look how KEYMESH

Galvanized reinforcing lath

multiplies fire resistance

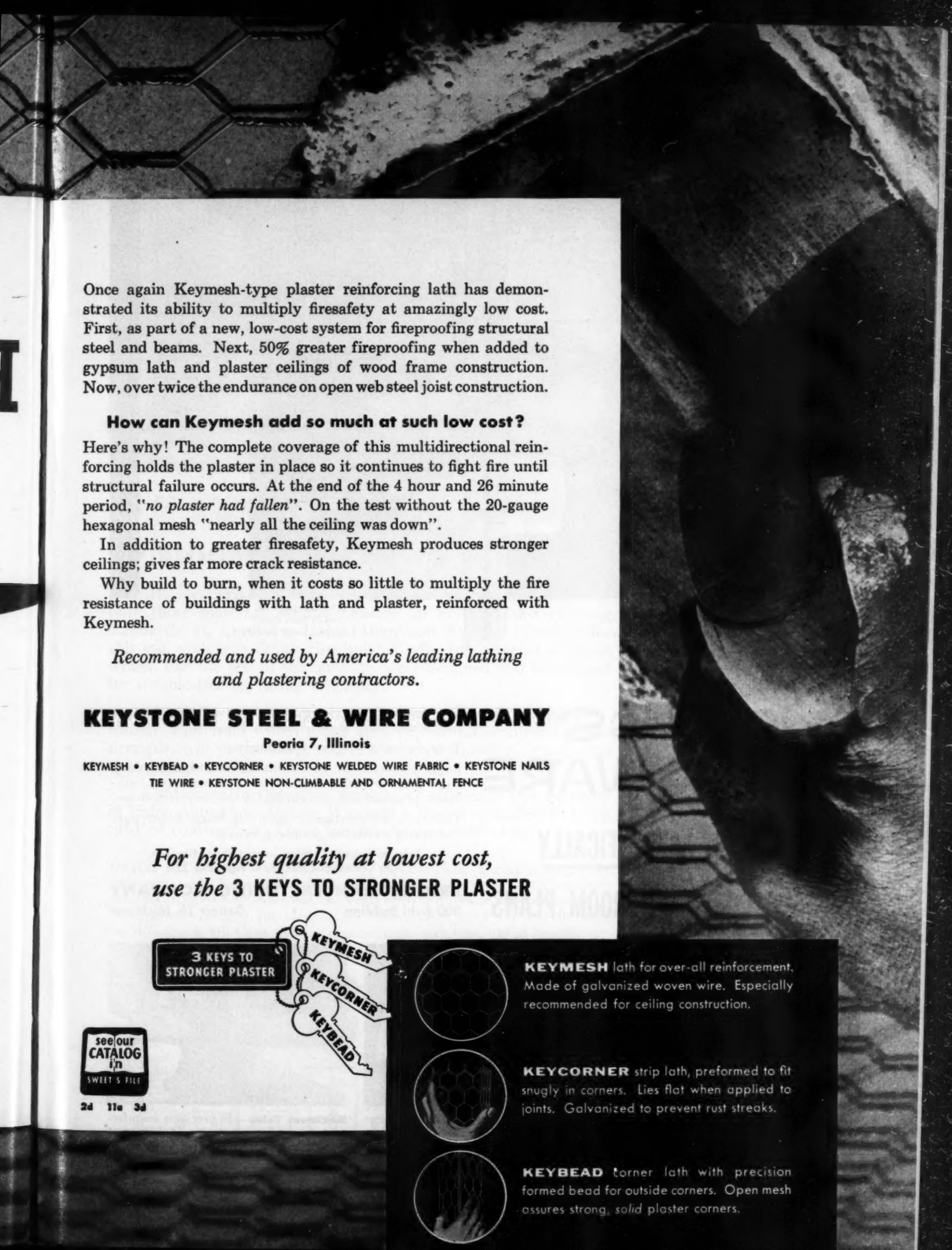
Ceiling Fire Endurance Test of Open Web Steel Joist Floors with Concrete Slabs and Gypsum Ceilings.*

	Fire endurance limit—
No finish on ceiling	7 min.
Gypsum lath and plaster ceiling added[1]	1 hr. 43 min.
Same, with **KEYMESH**-type reinforcing lath added[2]	4 hr. 26 min.

1. ⅜″ gypsum lath covered with 1⅛″ of gypsum plaster with expanded perlite aggregate.

2. ⅜″ gypsum lath, reinforced with 20-gauge, 1″ hexagonal mesh; then covered with only 1″ of gypsum plaster with expanded perlite aggregate. The use of hexagonal mesh fabric in ⅞ in. ceiling (⅜″ gypsum lath; ½″ plaster) gave *almost four times* the resistance obtained without, the report states.

*Building Materials and Structures Report 141 National Bureau of Standards



Once again Keymesh-type plaster reinforcing lath has demonstrated its ability to multiply firesafety at amazingly low cost. First, as part of a new, low-cost system for fireproofing structural steel and beams. Next, 50% greater fireproofing when added to gypsum lath and plaster ceilings of wood frame construction. Now, over twice the endurance on open web steel joist construction.

How can Keymesh add so much at such low cost?

Here's why! The complete coverage of this multidirectional reinforcing holds the plaster in place so it continues to fight fire until structural failure occurs. At the end of the 4 hour and 26 minute period, "*no plaster had fallen*". On the test without the 20-gauge hexagonal mesh "nearly all the ceiling was down".

In addition to greater firesafety, Keymesh produces stronger ceilings; gives far more crack resistance.

Why build to burn, when it costs so little to multiply the fire resistance of buildings with lath and plaster, reinforced with Keymesh.

Recommended and used by America's leading lathing and plastering contractors.

KEYSTONE STEEL & WIRE COMPANY

Peoria 7, Illinois

KEYMESH • KEYBEAD • KEYCORNER • KEYSTONE WELDED WIRE FABRIC • KEYSTONE NAILS
TIE WIRE • KEYSTONE NON-CLIMBABLE AND ORNAMENTAL FENCE

For highest quality at lowest cost,
use the **3 KEYS TO STRONGER PLASTER**

3 KEYS TO STRONGER PLASTER

KEYMESH

KEYCORNER

KEYBEAD

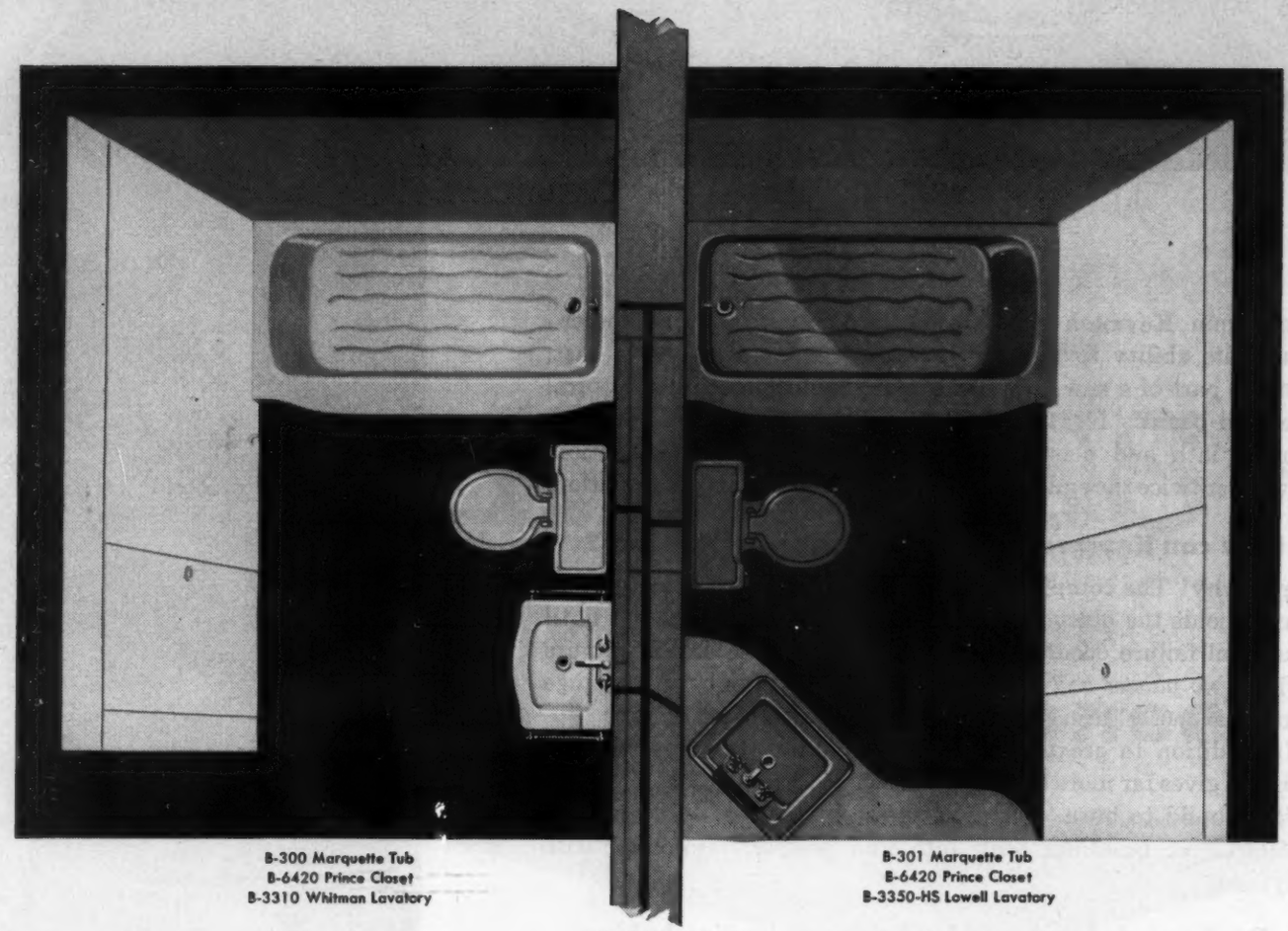
see our CATALOG in SWEET'S FILE

2d 11a 3d

KEYMESH lath for over-all reinforcement. Made of galvanized woven wire. Especially recommended for ceiling construction.

KEYCORNER strip lath, preformed to fit snugly in corners. Lies flat when applied to joints. Galvanized to prevent rust streaks.

KEYBEAD corner lath with precision formed bead for outside corners. Open mesh assures strong, *solid* plaster corners.



B-300 Marquette Tub
B-6420 Prince Closet
B-3310 Whitman Lavatory

B-301 Marquette Tub
B-6420 Prince Closet
B-3350-HS Lowell Lavatory

BRIGGS BEAUTYWARE

DESIGNED SCIENTIFICALLY

FOR YOUR TWO BATHROOM PLANS

Two bathrooms make homes more saleable because they make them more livable.

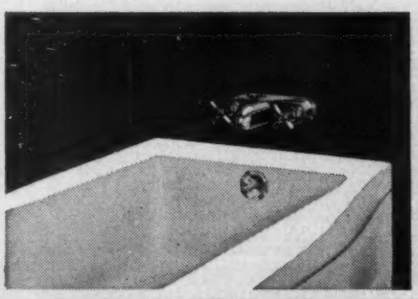
Your business benefits accordingly.

Briggs pioneered the two bathroom idea—and has done more than any other manufacturer to make two bathrooms practical and economical for the American home.

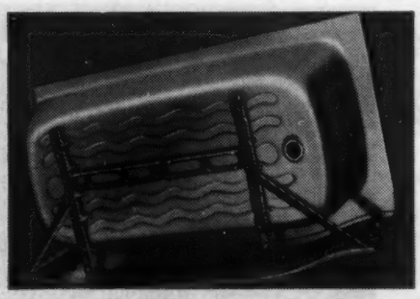
There is a *new* prestige in specifying Briggs Beautyware —America's smartest plumbing fixtures.

Refer to Sweet's Catalog—Architectural File 24A, Light Construction File 9B, or A.I.A. File 29H

BRIGGS MANUFACTURING COMPANY
300 Buhl Building • Detroit 26, Michigan

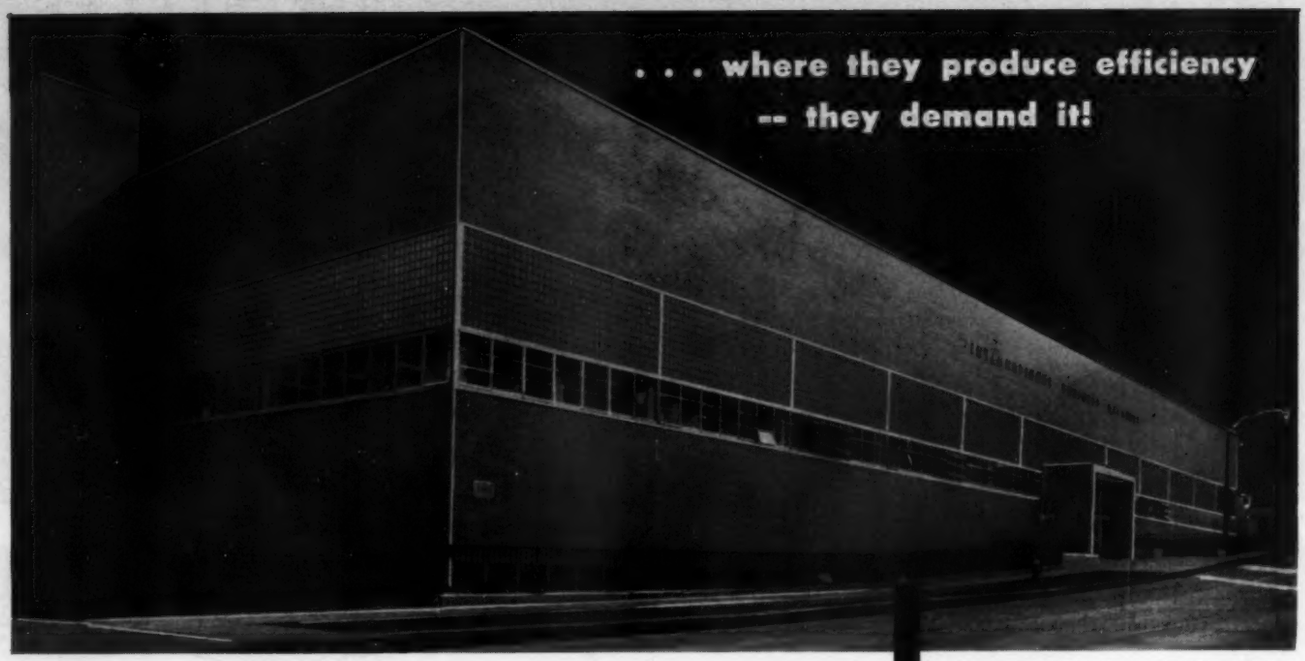


Advanced Design—All Briggs Beautyware is functional—distinctive in styling, exact in dimensions, formidable in construction, unequalled in utility features.



Engineered Installation — Specific time and labor saving features include free standing tubs with square straight ends—two bolt closets—jiffy assembly fittings.

Maximum Value—In precision manufacture, in quality reputation, in important selling features—the intrinsic value of Briggs Beautyware is truly outstanding.



International Business Machines Corp. Heat Treat Plant, Endicott, New York Architects: Smith, Hinchman & Grylls, Inc., Detroit, Mich. General Contractors: Sordoni Construction Co., Wilkes-Barre, Pa.

I B M USES UALCO AWNING WINDOWS

for efficiency and long-term economy

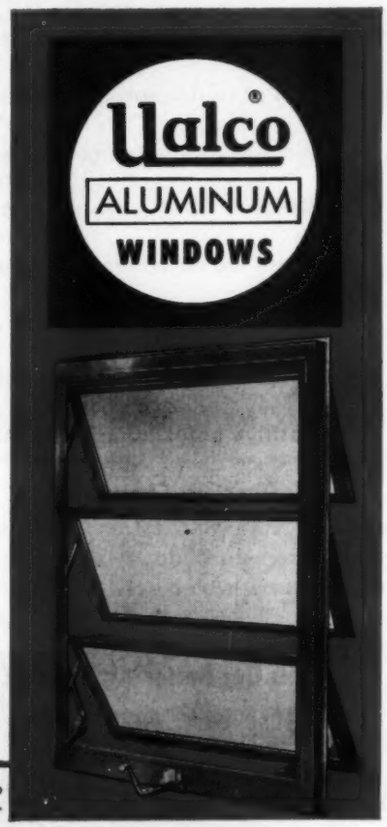
Efficiency experts that they are, IBM can be expected to accept only those materials which measure up to their own exacting standards. In specifying Ualco Aluminum Awning Windows for this job, architects Smith, Hinchman-Grylls, Inc. selected windows which, like the rest of the building, were designed and engineered for trouble-free operating efficiency.

In addition, Ualco Awning Windows are made of heavy extruded aluminum which meets all architectural requirements for strength; will never warp, rot, rust or need painting—require no upkeep expenses ever!

Confidence in the extra measure of efficiency and economy in Ualco Aluminum Awning Windows is shared by leaders in every field of construction. Ualco deserves your consideration.

UALCO ALUMINUM AWNING WINDOW FEATURES: Exclusive Strip-Proof Operator with heavy-duty torsion bar built-in cam lock. • Completely weather-stripped with Koroseal. • Vents open and lock in any position up to 90 degrees. • Integral fin surrounds windows; takes brick fin and fin trim. • Jiffy-Quick Sill Clips slide in channel from each side, use as needed.

SEE OUR CATALOG IN SWEET'S ARCHITECTURAL FILE 16A/U OR WRITE US FOR COMPLETE INFORMATION.



SELECT-A-VENT

UALCO WINDOWS ARE UNCONDITIONALLY GUARANTEED AGAINST DEFECTIVE MATERIALS AND WORKMANSHIP.

ENGINEERING PLANNING SERVICE: TO ASSIST ARCHITECTS, ENGINEERS AND CONTRACTORS IN MAKING "TAKE-OFFS" AND SOLVING WINDOW PROBLEMS.

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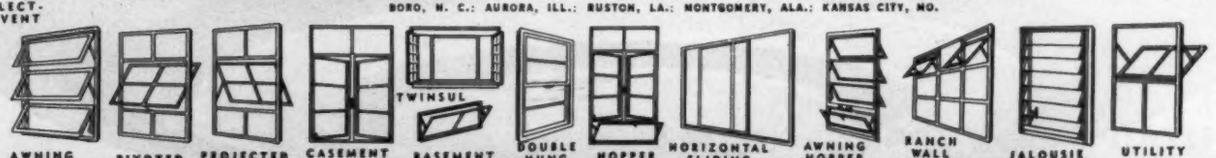
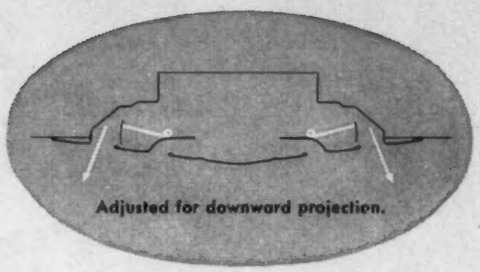
SALES OFFICES & WAREHOUSES: CANTON, OHIO; ELIZABETH, N. J.; HIALEAH, FLA.; FLORENCE, ALA.; VAN NUYS, CALIF.; GREENSBORO, N. C.; AURORA, ILL.; RUSTON, LA.; MONTGOMERY, ALA.; KANSAS CITY, MO.



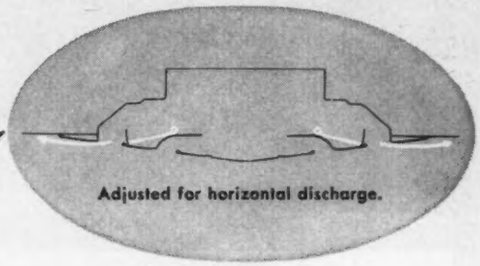
UALCO—WORLD'S LARGEST MANUFACTURER OF ALUMINUM WINDOWS

Take a look at a TRULY ADJUSTABLE Diffuser

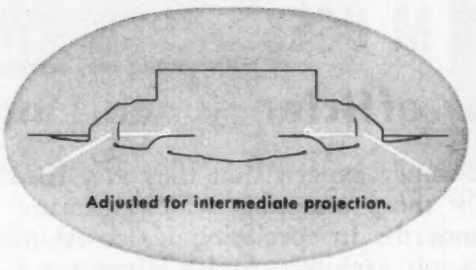


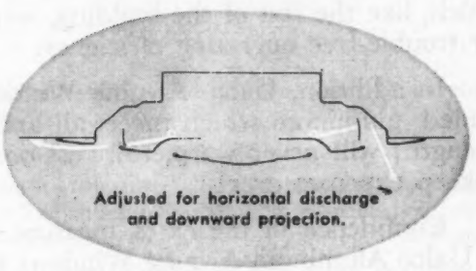
AGITAIR®

TYPE "OA"



Here's a distinctively different diffuser with a radically new means of controlling air direction at four different angles of discharge simultaneously. *Without changing the position of the spinnings,* AGITAIR "OA" diffusers can be adjusted to put the air where you want it in one, two, three or four directions . . . *after installation.* Result: Segmentized . . . positive adjustability with Finger-Tip Air Direction Control.





Write for Bulletin C-101

Contains complete data, performance charts, construction details, etc.

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AIR DEVICES INC.

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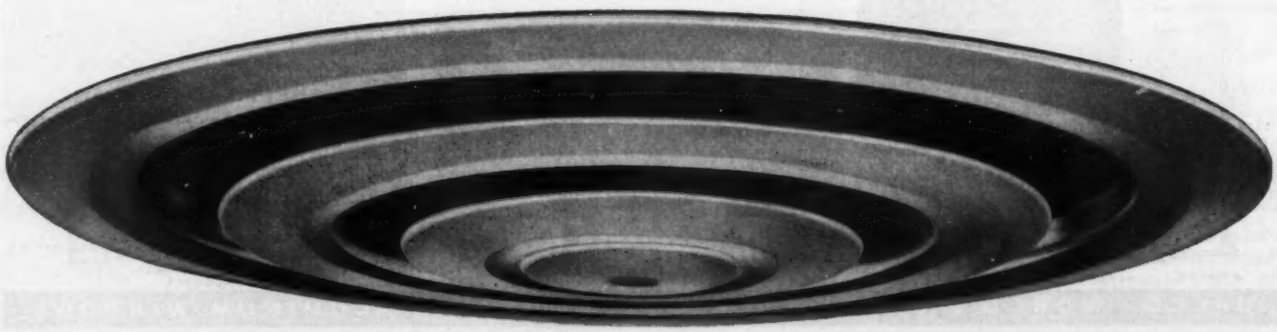
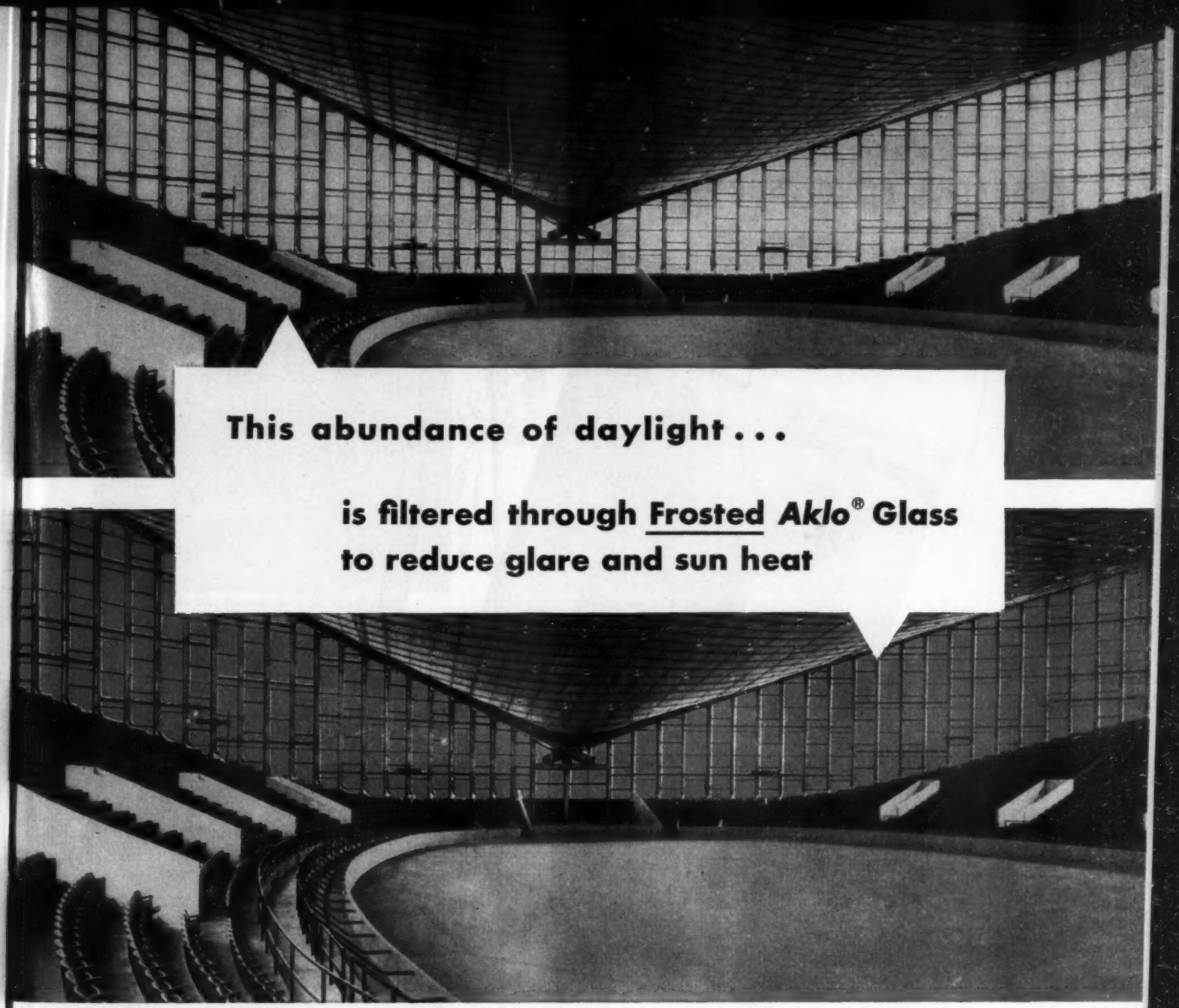
Air Diffusers • Filters • Exhausters





This abundance of daylight . . .

is filtered through Frosted *Aklo*® Glass to reduce glare and sun heat

Wm. Henley Deitrick, architect; Matthew Nowicki, consultant; Severud-Elstad-Krueger, consulting engineer

This is one of America's outstanding buildings . . . the prize-winning North Carolina State Fair Arena. In it, the architects and engineers employed two design features that produce eye-comfort daylighting:

1. A large expanse of glass that eliminates the glaring effect of contrasting opaque walls and "hole-in-wall" windows.
2. A filter of blue-green Frosted *Aklo* Glass.

Frosted *Aklo* Glass softens and diffuses direct sunlight, sky brightness and dazzling reflections. It cuts down sun heat. Used in ¼" thickness, it shuts out as much as 44% of the sun's radiant energy. And it's a restful color . . . a "cool" color.

Aklo is widely used in factories, offices and many other buildings. Better selling, greater comfort for occupants . . . better workmanship . . . better employe relations are all worth-while benefits.

PHONE FOR THIS TEST. A call will bring a radiometer demonstration kit to your desk. It shows you how *Aklo* Glass reduces glare and sun heat. Call your L·O·F Glass Distributor or Dealer listed under "Glass" in the yellow pages of your phone book. Or write to Libbey·Owens·Ford Glass Company, 608 Madison Avenue, Toledo 3, Ohio.

AKLO GLASS **FILTERS DAYLIGHT**

made by Blue Ridge Glass Corp.
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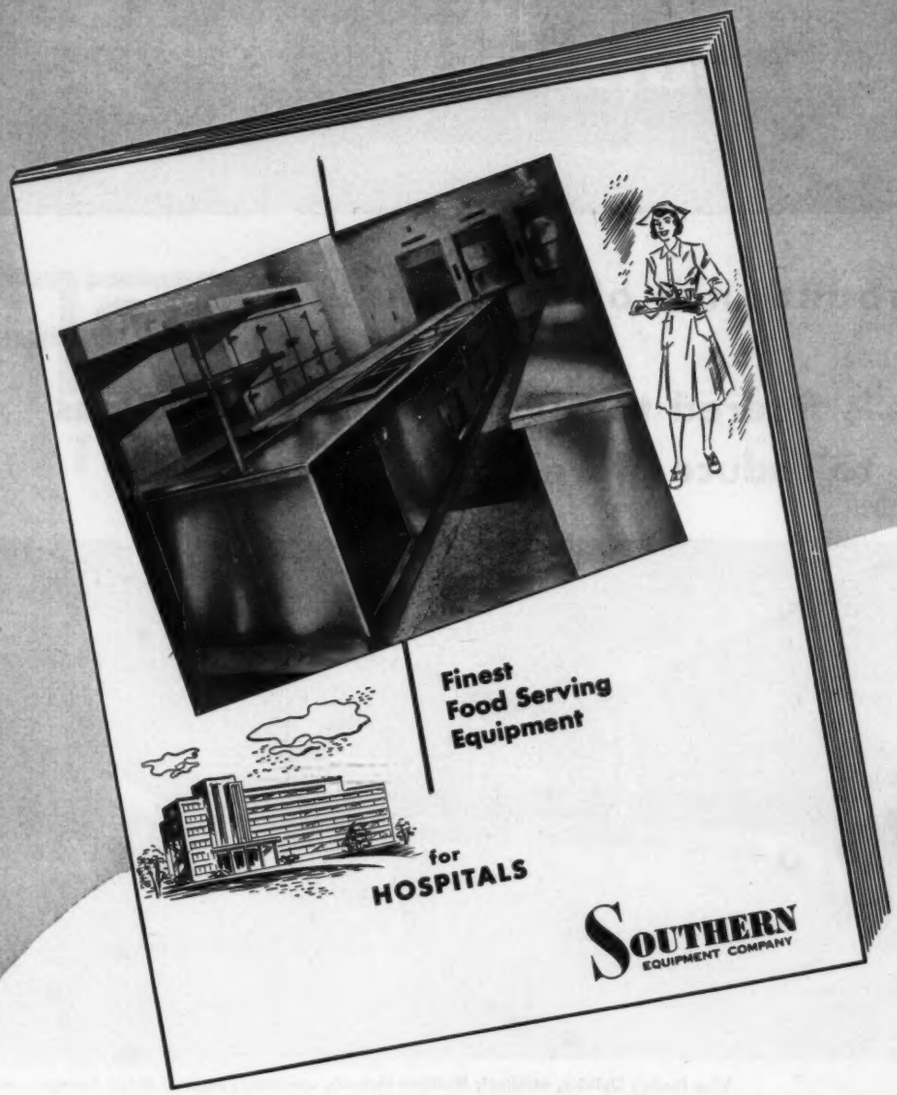
L·O·F GLASS

Eight case histories of
BETTER FOOD SERVICE PLANNING



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Kitchen and food serving problems are the reason that we are in the business. Strict attention to all details result in award-winning installations such as shown in this new brochure. A copy is waiting for you.

Get expert help with your next kitchen equipment problem or layout . . . call your "Custom-Bilt by Southern" dealer or write Southern Equipment Company, St. Louis 16, Mo.

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SOUTHERN
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All equipment fabricated by Southern is approved by National Sanitation Foundation.

SPECIAL IDENTITY

Easily Attained with BRASCO Settings

Installed by Binswanger & Co., Memphis.
Architect, E. L. Harrison.

Donaldson Dept. Store at Miracle Mile Shopping Center, Rochester, Minn.
Installed by Northwestern Glass Co., Minneapolis.
Architect, M. O. Nathan, Chicago.

Installed by Barngrover & Son Glass Co., Burlington, Iowa.
Complete Front in Brasco Stainless Steel.

Installed by Hamilton Glass Co., Chicago.
Archts. Loebl, Schlossman & Bennett.

YOU CAN SEE how adaptable Brasco Store Fronts and Entrances are to wide variations in modern architectural treatment. The stores shown here certainly differ in type, size and design. Yet Brasco settings accentuate the individuality of each store . . . catch the eye of the passer-by.

This special identity is easily attained without costly custom fabrication. Distinguished fronts and entrances are designed and built complete with our prefabricated stock metal settings only. The extensive Brasco line permits a pleasing variety of interesting and unique effects.

Your Brasco distributor provides expert installation and glazing service. Store fronts are available in anodized aluminum or stainless steel. Brasco Aluminum Entrances harmonize perfectly and are built to stand up indefinitely under hard daily use. For full size construction details portfolios please write Dept. R 504.

THE PRODUCERS' COUNCIL

STORE FRONTS
ENTRANCES
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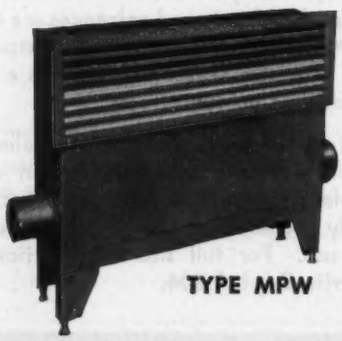
BRASCO MANUFACTURING CO. HARVEY, ILLINOIS

Metal Store Front Specialists for more than 40 Years

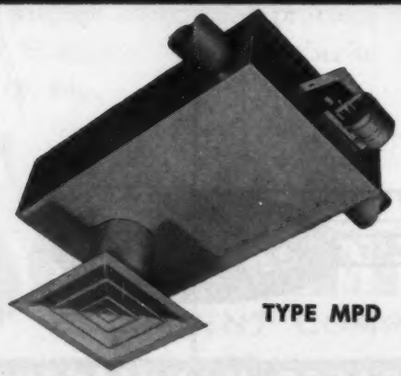
Air Conditioning Systems are on a diet...

thanks to

Tuttle & Bailey High Pressure Air Distribution Units



TYPE MPW



TYPE MPD

T&B HIGH PRESSURE INSTALLATIONS INCLUDE: Bethlehem Steel Co., Bethlehem, Pa. • Dallas County Building, Dallas, Texas Dearborn Bank, Dearborn, Mich. • Decatur-Macon County Hospital, Decatur, Ill. • General Telephone Exchange, Chicago, Ill.

IF YOU can reduce the space you need for an air conditioning system, you can obviously effect substantial savings in the over-all cost of a building. With a high pressure air conditioning system, you can do just that.

Small, low-cost conduit-type risers and branch feeders add more usable or rentable floor space, reduce floor-to-floor dimensions, and require fewer supplementary equipment rooms.

High pressure is the ideal type of air conditioning system for new multi-story office buildings, schools, hospitals, hotels, and institutions. It is also *particularly* well suited to installation in existing buildings where high pressure eliminates the need for major remodeling. In fact, in many older buildings, such a system is the *only* answer to air conditioning.

A pioneer in the development of the high pressure theory, Tuttle & Bailey manufactures a complete line of equipment to meet the varied requirements of a wide range of buildings and types of construction. Tuttle & Bailey Units include single and double duct wall and ceiling types for individual unit or zone control, and are capable of handling branch duct velocities up to 4000 feet per minute.

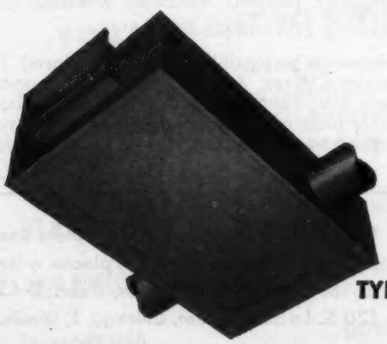
The units shown below typify the Tuttle & Bailey line which is backed by extensive on-the-job experience, and one of the best-equipped Research Laboratories in the industry where T&B engineers can duplicate field conditions and pretest equipment and thus offer maximum assistance to architects and engineers.

To learn how you can take advantage of Tuttle & Bailey's high pressure know-how, get in touch with your nearest T&B Representative or the Home Office.

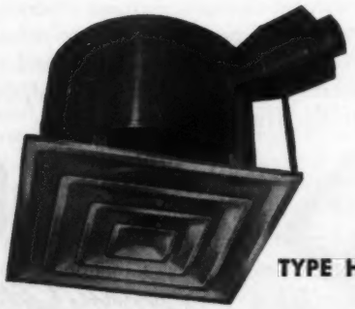
For information on the complete line of Tuttle & Bailey High Pressure Air Distribution Units, write for Bulletin 109.

TUTTLE & BAILEY inc

NEW BRITAIN, CONN.



TYPE MP



TYPE HPD

IBM World Headquarters, New York, N.Y. • Latter Day Saints Society Building, Salt Lake City, Utah • Lever House, New York, N.Y. People's National Bank, Little Rock, Ark. • Seamen's Bank for Savings, New York, N.Y. • Sinclair Oil Building, Tulsa, Okla.

Sinclair Oil's New Chicago Headquarters —Completely Sound Conditioned with Acousti-Celotex Tile

Sinclair Oil Building, 155 North Wacker Drive, Chicago
Owner: John W. Galbreath & Co., Inc.
Architect: Holabird & Root & Burgee
Builder: Turner Construction Company
Acoustical Contractor: James L. Lyon Co.

Lighting and air conditioning also included in integrated* system

John W. Galbreath & Co., Inc. has gone all-out for employee efficiency and comfort in this outstanding new Chicago office building. Throughout the 200,000 square feet of the building, Acousti-Celotex Mineral Tile traps machine clatter and voice chatter, reduces routine noise in general and private offices and corridors. For the Sinclair Oil Company and other tenants, this means that errors will be reduced, over-time lessened, productivity increased.

Low in Cost—Easily Maintained—Acousti-Celotex Tile provides economical sound-conditioning. No special maintenance is required. Beauty and cleanliness add to the advantages of highly effective sound-absorption. Acousti-Celotex Tile can be washed *repeatedly*, painted *repeatedly* without loss of sound absorbing efficiency.

*Acousti-Celotex incombustible Perforated Mineral Tile is installed on the Celotex Acousti-Line® Metal Suspension Ceiling, where Tile, light fixtures and air diffusers become interchangeable parts of the ceiling. When a new layout is desired, units can be quickly relocated . . . economically!

TRADE MARK

ACOUSTI-CELOTEX

REGISTERED U. S. PAT. OFF.

Sound Conditioning

Products for Every Sound Conditioning Problem

FOR FULL DETAILS on the complete line of Acousti-Celotex products, please write to The Celotex Corporation, Dept. B-45 120 S. La Salle Street, Chicago 3, Illinois.

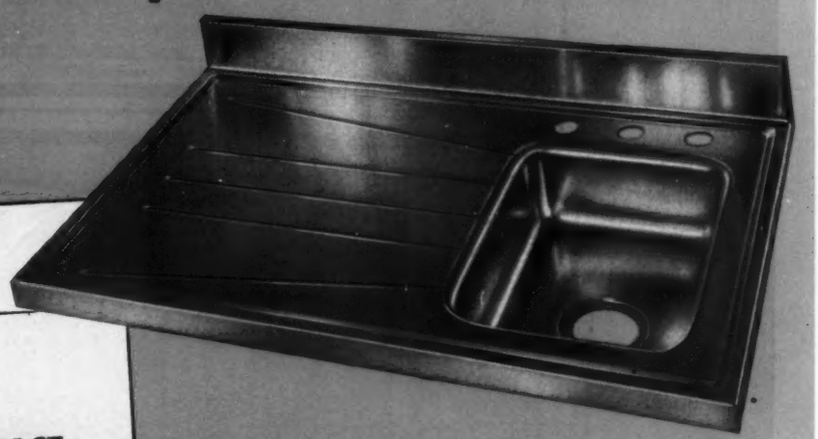
THE CELOTEX CORPORATION, 120 S. LA SALLE ST., CHICAGO 3, ILLINOIS. IN CANADA: DOMINION SOUND EQUIPMENTS, LTD., MONTREAL, QUEBEC

SELL WHAT *Your* PUBLIC WANTS*

Pacemaker
by ELKAY

STAINLESS STEEL SINKS
Costs no more
THAN CAST IRON!

a new name—a new price BACKED BY AN ESTABLISHED REPUTATION



***BUILDERS:**

HERE IS PROOF OF A FACT YOU'LL WANT TO KNOW

Nationwide survey by House Beautiful indicates clearly an important trend in counter top preference. So ride with the tide—install stainless steel, *most* wanted by a big margin.

STAINLESS STEEL	up 67%
CERAMIC TILE	down 30%
LINOLEUM	down 93%

Pacemaker 〉

Pacemaker stainless steel sink tops and bowls are being introduced by ELKAY, famous for quality, so that you, the builder, can offer "wanted" stainless steel in *all* your houses. This new, low price line is ideal for project building, apartments and remodeling . . . costs no more than cast iron! The public *wants* stainless steel so they can forget sink replacement—forget chipped and worn porcelain. You can give them *Pacemaker* . . . the "eye-catcher" in your house-selling kitchens.

Write for complete information.

ELKAY MANUFACTURING COMPANY
1874 S. 54th Ave., Chicago 50

backed by ELKAY—leading manufacturer of Stainless Steel Sinks . . . Since 1920

Evans
AIR
Every Part Precision Made and Fitted

FILTERS

New... All Aluminum... Lifelong

Creates new design opportunities with (1) AMAZING HIGH DUST HOLDING CAPACITY . . . that slows down the clogging action of lint and dust . . . at the same time provides a DOUBLE MARGIN OF SAFETY for today's costly, and highly sensitive forced air equipment. (2) Allows highest efficiency of air handling equipment for a lifetime. (3) Gives SURER PROTECTION for a lifetime.

NEW . . . MORE FILTERING ACTION PER SQUARE INCH

Precision stamped and angled openings of grid pact set up super high turbulence. Cause air to travel 3.5 times filter depth from inlet to outlet side . . . force it over 1.24 miles of burred, talon like edges in a 20" x 20" x 2" size filter.

NEW . . . MORE DUST CAPACITY PER SQUARE INCH

Large precision cut openings on inlet side hold lint without stopping air flow. Minimize matting. Utilize filter depth. Give filter 200% greater dust holding capacity . . . without harmful resistance to air flow.

NEW . . . MORE STRENGTH, RIGIDITY PER SQUARE INCH

Frames made of extruded aluminum. Designed to hold true dimensions and alignment under heaviest stress . . . yet filters are so light and easy to carry that time and labor costs are cut to a minimum on every installation.

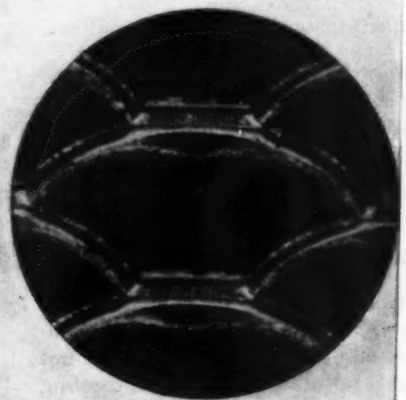
NOTE: The precision stamped grid pacts are so strong they will withstand an 1 and 1/8" stream of water under 65 lbs. pressure (at 300 gallons per minute).

NEW . . . CLEAN IN ORDINARY ROOM WITH TAP WATER

No special facilities or costly cleaning equipment required. No dripping oil. No mess. Recoat an Evans filter simply by a light spray of filter fluid. Filter does not require dipping, immersion, or draining . . . nor standby filters.

Now a filter has been developed to give a performance ABOVE AND BEYOND ANY AVERAGE DEMAND . . . YET COST HAS BEEN HELD DOWN TO MAKE IT PRACTICAL FOR ANY INSTALLATION.

Put new performance, greater life into your air handling equipment with the COMPLETELY PRECISION MADE EVANS FILTER. Ask for prices, complete engineering data, and FREE ILLUSTRATED LITERATURE. Write today.



Blowup of Evans grid showing precision cut openings with thousands of burred talons for clutching and holding dirt.

THE GEORGE EVANS CORPORATION MOLINE - ILLINOIS

Gentlemen: Please rush me complete free information on the new EVANS HIGH CAPACITY FILTER . . . THAT brings a revolutionary new concept to air filtering.

Name

Address

Company

City State

Existing Road Improved. The Ninety-Sixth Street overpass on the F. D. Roosevelt Drive along the East River, New York, is typical of much new construction designed to speed traffic flow. Monel was specified for gutters because a long-wearing, low-maintenance metal was desired in the structure built for the city by the Triborough Bridge and Tunnel Authority.

How to keep an *Overhead* problem *Under* control

This 4-block-long highway overpass is built with four expansion joints and t o dams.

Under these six spots are six gutters.

They don't have to be painted. They seldom have to be looked at. And they may never need any maintenance work done on them!

What kind of gutters are these? They are permanent gutters — made of Monel® Roofing Sheet.

Because of its nickel-copper composition, Monel possesses a unique combination of properties — properties not found in other non-ferrous roofing metals.

Monel, for example, is stronger and tougher than structural steel. It is tough and hard. It resists stresses, strains and wear. Its low coefficient of expansion reduces the possibility of fatigue failure.

In the location pictured above, the effects of dirt, soot, fumes and dampness must also be considered. But they don't bother Monel. And what about the *salt* used on the roadway to reduce ice hazards during winter storms? It doesn't hurt these corrosion resisting gutters in the least.

Monel, of course, is equally well suited for many jobs in addition to gutters. It is adaptable to almost all types of public works, commercial buildings — even homes. Specify it for complete roofs — flat, standing or batten seam. And for flashings, skylight frames, reglets, cornices, downspouts, louvers and ventilators.

Remember — you do your clients a *lasting* service every time you specify Monel. It's a *lasting* metal!

Installing Monel Gutter under expansion bands at the north abutment of the overpass. Monel is easy to bend, cut and weld. Although relatively thin gauge sheet is used (in this case .062"), Monel gutters have ample strength to withstand deformation during installation . . . and abrasion and flexure after installation. ***Consulting engineers: Brown & Blauvelt, New York.***

THE INTERNATIONAL NICKEL COMPANY, INC.
67 Wall Street New York 5, N. Y.

INCO TRADE MARK **Nickel Alloys**

Monel Roofing...*"for the life of the building"*

Photograph features "Lifetime" Vinyl Tile made of BAKELITE Vinyl Resins by **Robbins Floor Products, Inc.**, Tuscumbia, Ala.

This is a floor of tomorrow

It is flooring made of BAKELITE Brand Vinyl Resins. It is lustrous and rich in bright color. And five, ten and more years from now it can still be just as beautiful. That's because time and traffic do not take their toll with this type of flooring.

The impervious nature of flooring made of BAKELITE Vinyl Resins is superior protection for your clients, and for you. By specifying, you assure clients a broad selection from a full range of colors and patterns. You assure superior advantages in use—wear, chemicals, scuffs, stains soil and cleansers are resisted years longer. You specify flooring that cleans easier and makes maintenance costs lower.

These are welcome advantages for *any* kind of building . . . benefits that are simple to attain by specifying "flooring made of BAKELITE Vinyl Resins."

BAKELITE BRAND Vinyl Resins

BAKELITE COMPANY, *A Division of Union Carbide and Carbon Corporation* UCC 30 East 42nd Street, New York 17, N. Y.

The term BAKELITE and the Trefoil Symbol are registered trade-marks of UCC

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CABINETS
LOCKERS

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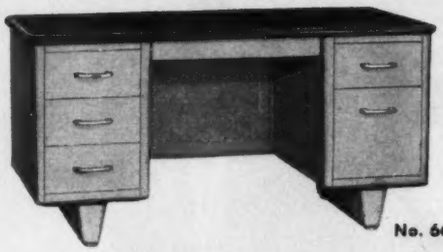

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CHAIRS Swivel, Side, Arm and Posture types styled and built for comfort.

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quality equipment . . . the functional quality that is built into ASE products. ASE beauty is enduring . . . ASE quality is inherent. Maximum flexibility permits unusual latitude in solving your planning problems. You can design for tomorrow today! Write now for valuable pre-planning information on all ASE furniture.

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WRITE FOR COMPLETE INFORMATION, THERE'S AN ASE DEALER NEAR YOU

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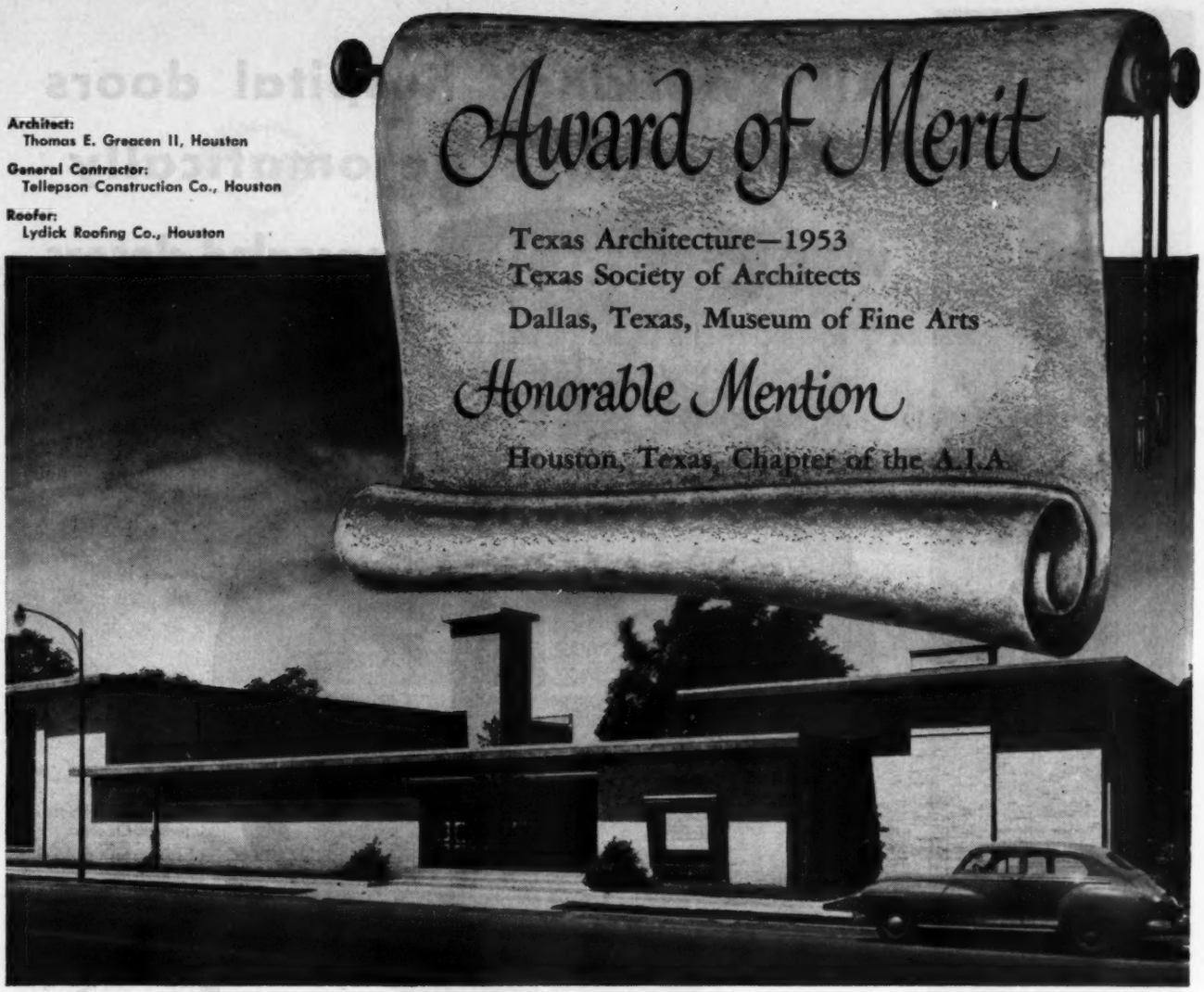

Award-winning church is protected by a **KOPPERS ROOF**

see our catalog in ARCHITECTURAL FILE or write for copy

Here is the First Unitarian Church of Houston, Texas. A glance tells you it is attractively designed . . . functionally designed. And, as shown on the scroll, it has been acclaimed by architectural societies.

This award-winning structure is protected by a Koppers Built-Up Roof. Bonded for 20 years, this roof will give long, trouble-free service.

Many Koppers Pitch and Felt Roofs have been in use for more than 30 years. Coal-tar pitch, the basic ingredient in Koppers Roofs, gets most of the credit for this long service life. Pitch is famous for its waterproofing properties, and for sealing itself when minor cracks occur.

If your plans call for a flat roof, be sure to specify Koppers. Full information on request, or see our specifications in Section 7a—Sweet's Architectural File.

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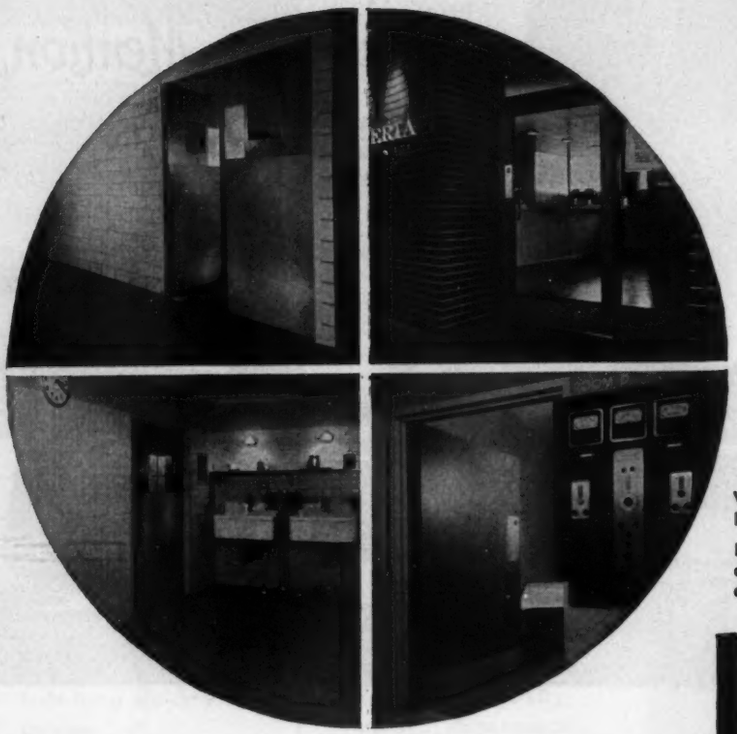
KOPPERS COMPANY, INC., Pittsburgh 19, Pennsylvania

DISTRICT OFFICES: BOSTON, CHICAGO, LOS ANGELES, NEW YORK, PITTSBURGH, AND WOODWARD, ALA.

· SPECIFY KOPPERS FOR LONG-LIFE ROOFING ·

All "*working*" hospital doors should close automatically with RIXSON concealed closers



Weiss Memorial Hospital Interiors, Chicago.

LOEBL, SCHLOSSMAN and BENNETT, architects, Chicago.

RIXSON concealed closers are firmly embedded in the RIGID FLOOR

Where patients, visitors and a busy staff pass through doors . . . a safe, controlled door closing action is important. Every "working" hospital door, including entrance and vestibule doors, utility room, toilet, and patient room doors—should be equipped with RIXSON floor type closers. The doors will open with a light, easy push and then close gently, quietly, and automatically. RIXSON Closers are out of the way, firmly concealed in the rigid floor where they cannot gather dust or dirt and cannot obstruct the door opening. No unsightly arms or mechanism exposed.

There's a silent, automatic RIXSON Closer to suit every interior and exterior door requirement — from the lightest patient room door to the extra heavy X-ray room door.

Most RIXSON Closers available with built-in hold-open.

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Any way you look at it...

ILG No. 8091 . . . ILGETTE Automatic 10" Wall Type . . . auxiliary motor opens and closes outside door . . . single switch operated. Main motor is completely enclosed, self-cooled.

kitchen ventilators quality-sell any home!

Talk to new home owners. Ask what really sold them within the price bracket they selected. If they're like most people, it was *quality* . . . or special *features* that meant quality. And that's the story behind famous-for-quality Ilg Kitchen Ventilators. Built better to perform better longer, they're your answer to today's critical home buyer. Known and respected everywhere, Ilg's green and silver name-plate can be your best silent salesman for quality. You put it to work when you specify Ilg Kitchen Fans.

How ILG quality works for you

SUPER QUIET . . . The result of special design and careful construction, Ilg Kitchen Ventilators are so quiet you hardly know they're on.

BETTER BUILT . . . All Ilg Kitchen Ventilators have all the strength and top performance the finest materials and craftsmanship can provide. Both fan and motor are covered by Ilg's famous one-name-plate guarantee.

POWERFUL . . . A result of more than adequate horsepower and special, high-efficiency blade design, every Ilg Kitchen Ventilator is certified for full-rated air moving capacity.

DEPENDABLE . . . Long famous for the finest in industrial ventilation, Ilg continues this proud tradition with its complete line of kitchen ventilators.

Other ILG quality bargains...

ILG LC-8 . . . Built-in Type. Has 8" Type "Q" fan blade and totally enclosed motor. Telescoping sleeves fit most any wall thicknesses. Pull chain operated.

ILG No. 8132 . . . Ilgette Ceiling Type. Can be mounted in plaster or plywood construction thicknesses from ⅛" to 2". Single switch operated.

Send for this complete Bulletin on ILG Kitchen Fans today—yours free!

ILG ELECTRIC VENTILATING CO.
2820 North Pulaski Road, Chicago 41, Ill.

Small offices become executive suites...with Modernfold

Even the smallest offices can be made roomier, more efficient and happier places to work.

All it takes is MODERNFOLD—the door that folds completely *within* the door frame. That's especially important in very small rooms, where a MODERNFOLD door can add 10% to the usable floor space. Just by eliminating old-fashioned door swing, you make room for another chair, table or file cabinet.

To workers in partitioned cubicles, a MODERNFOLD door is like a promotion. It gives them the working environment and prestige of a private office.

Office managers appreciate MODERNFOLD doors for a different reason; their construction. Washable vinyl covers a double strength steel frame that operates smoothly, year after year. And MODERNFOLD offers dozens of cheery morale-boosting colors.

Your clients will marvel at the ingenious way MODERNFOLD doors magically make small offices more roomy and attractive at so little cost!

The MODERNFOLD distributor (listed under "Doors" in classified directories) will be glad to show you the Custom line. Your building supply dealer has the Spacemaster line available. Or write New Castle Products, Inc., Dept. D30, New Castle, Indiana. In Canada: New Castle Products, Ltd., Montreal 6.

Full Details in Sweet's File

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DOORS

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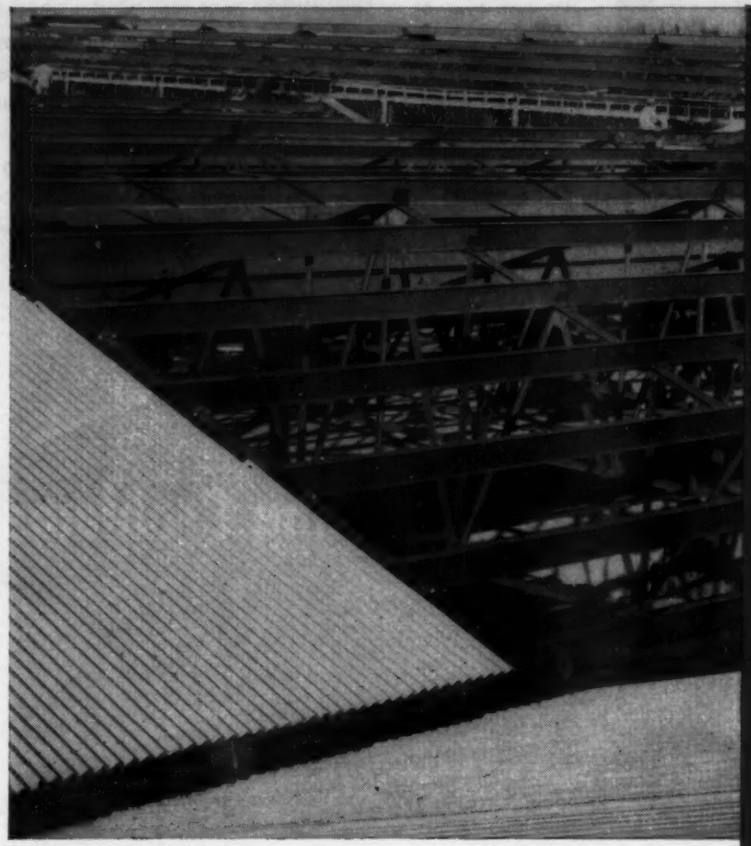
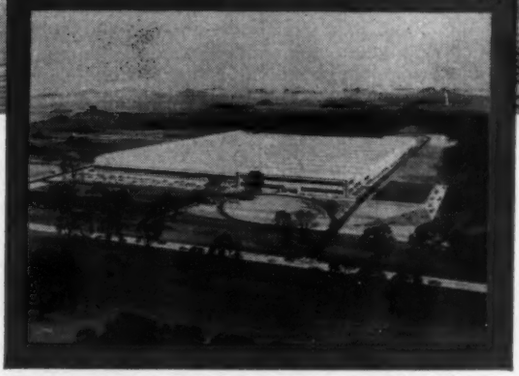
BUILDERS BEAT A DEADLINE WITH J&L JUNIOR BEAMS



JOB DESCRIPTION
Marvel-Schebler Products Division
Borg-Warner Corporation
Automatic Transmission Department Building
Decatur, Illinois
Engineers—
Alfred Benesch & Associates, Chicago
Structural Steel Fabricator—
Indiana Bridge Company, Muncie, Ind.
Contractor—
J. L. Simmons Co., Inc., Decatur, Illinois



2400 tons of steel structurals, including over 500 tons of J&L Junior Beams, in 75 days . . . that was the "unusual" erection schedule laid down for the new automatic transmission building of Borg-Warner Corporation's Marvel-Schebler Products Division. And the schedule was met with a few days to spare!

The men on the job give lightweight Junior Beam roof purlins a big share of the credit for this outstanding accomplishment. Here are just some of their reports.

"The time for delivery of steel . . . was the essence of the contract. We chose J&L Junior Beams because of their availability, simple fabrication and ease of erection."

H. E. WRAY, Assistant General Manager
INDIANA BRIDGE COMPANY

"We could never have met the schedule that was laid down without these J&L Junior Beams. They have a wider seating area and double footings which gave our workmen a safer, faster area of moving around aloft. If we had used the usual channels, we would have had to slow down for safety's sake. We would have had foot room on only one side of the bottom of the channels, compared with a place on either side for a man to get foot support on the beams."

CECIL STODGHILL, Construction Superintendent
INDIANA BRIDGE COMPANY

Take a tip from the men that are using them, J&L lightweight Junior Beams can help you cut building costs. Experience shows that J&L Junior Beams are the most economical hot rolled purlin sections available. They're adaptable, easy to install, rigid and vibration resistant.

Write today for more information on this modern lightweight J&L structural.

Jones & Laughlin Steel Corporation
466 Gateway Center, Pittsburgh 30, Pa.

☐ Please send me a free copy of your booklet on J&L Junior Beams.
☐ Please send me comparative cost figures on purlin sections.

Name_____
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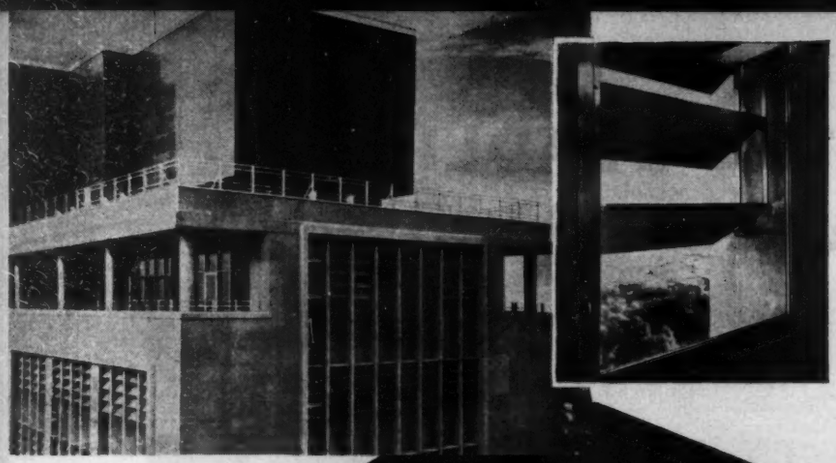
Jones & Laughlin
STEEL CORPORATION — *Pittsburgh*

J&L STEEL

JUNIOR BEAMS ARE READILY AVAILABLE FOR PROMPT DELIVERY

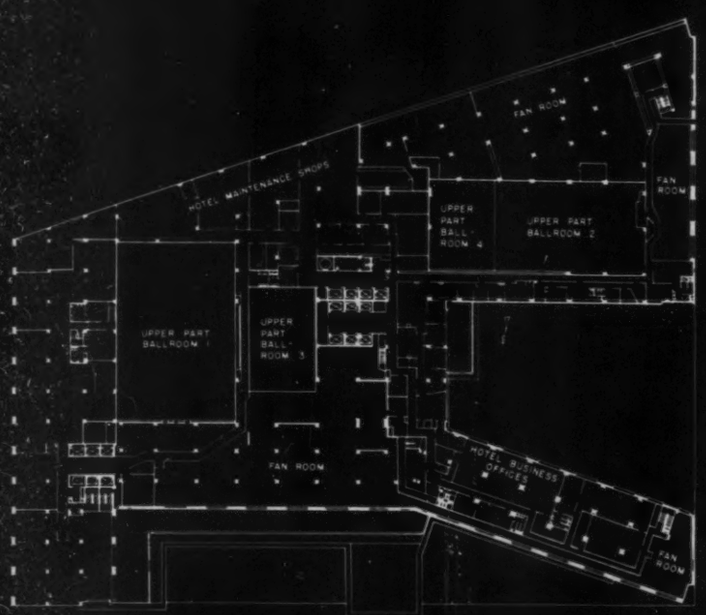


Fixed vertical fins and adjustable external shades keep hot sun out

Architects for the Waterman Building in Mobile adopted external means to control the Alabama sunlight. All office windows are protected by vertical fins of stone that block rays coming from either side. In addition, there are horizontal louver-like shades on the south and east sides. These shades can be adjusted through an arc of 180° to screen out the sun during the day (see insert). The north face of the building is exposed only to low afternoon or early morning sun at certain seasons. Therefore, windows on the north have fixed vertical shades that supplement the vertical stone fins.

With their efficiency thus increased, air conditioning units at windows offer flexible temperature control. A conventional duct system with ceiling diffusers serves the interior areas.

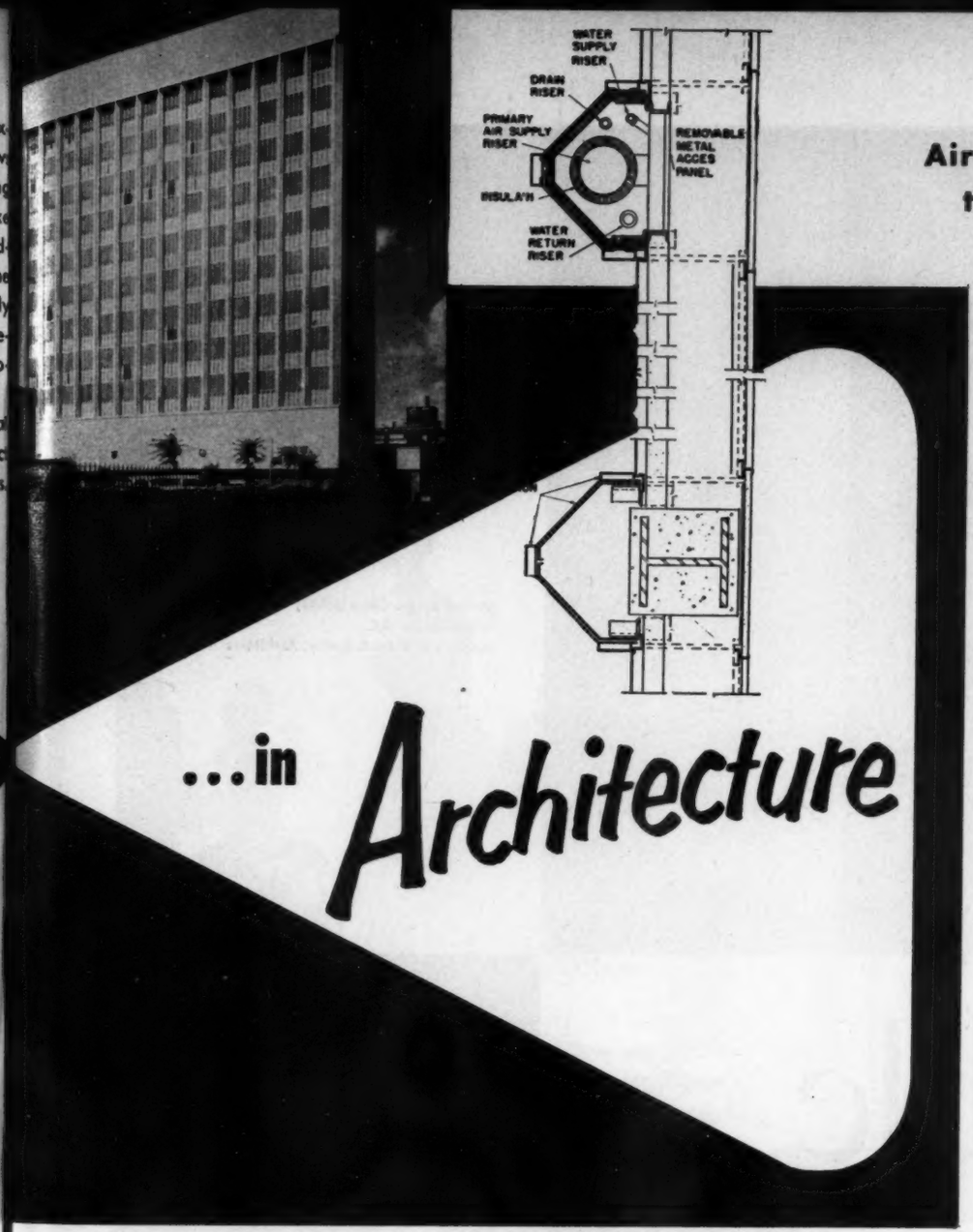
to Air Conditioning Problems



Fan rooms located near greatest cooling load ...less ductwork needed

Foresight in planning the location of the fan gallery helped assure maximum comfort for public areas of the Los Angeles Statler Hotel and keeps ductwork short. The fan gallery that serves these public areas—which include the lobby, shops, dining rooms, cocktail lounge and four ballrooms—is immediately adjacent to and above them. Thus short ducts supply the areas and need not cross guest-room floors.

Guest rooms are served by separate supply systems, with conduits running up through interior shafts. Each room has a special aspirating diffuser over the vestibule and manual controls in the entryway. This location assures good mixing and air distribution. The mild Los Angeles climate made window units unnecessary. Of course, Du Pont "Freon" refrigerants are an integral part of the Los Angeles Statler's equipment.



...in Architecture

Air conditioning ducts run through external fins ...save space

Here's another example of exterior vertical fins serving a highly functional purpose, in the Texas Employers' Insurance Association home office building in Dallas. Pipe and air supply risers are installed in the aluminum fins to provide air conditioning for exterior zones. Each fin carries an air conduit, two water pipes and a drain . . . together with the window units this comprises the high-pressure-conduit type of air conditioning used. Since the air conduit is 13 inches in diameter in places, the saving of office space is considerable.

As the diagram shows, each aluminum fin has backdrop insulation of precast perlite blocks in addition to 1-inch blanket-type insulation. At each floor there are connections from the piping in the fins to window units.

Du Pont "FREON"* refrigerants promote long life and efficiency of all types of installations

Particular architectural problems calling for specific solutions may make necessary the use of one of several types of air conditioning equipment. That's why it's well to remember the flexibility of air conditioning systems charged with Du Pont "Freon" fluorinated hydrocarbon refrigerants. Whatever the design of the installation, and whether it's big or small, there's a "Freon" refrigerant that will help it operate efficiently and economically for a long, long time.

Recommend a system charged with "Freon" refrigerants and feel confident you are serving your client's best interests. You'll be suggesting a refrigerant that's safe . . . nonflammable, nonexplosive, virtually nontoxic. Clients appreciate a pure, uniform refrigerant backed by the reputation and facilities of Du Pont. "Freon" refrigerants meet building-code requirements everywhere. E. I. du Pont de Nemours & Co. (Inc.), "Kinetic" Chemicals Division, Wilmington 98, Delaware.

SEND FOR INFORMATIVE FREE BOOKLET filled with practical data and suggestions to help solve a wide variety of basic installation problems. Authorities discuss, in specific chapters, air conditioning for homes, hotels, offices, restaurants, plants, laboratories, retail stores, shopping centers, and many other places. Write today for your free copy from Du Pont, at the above address.

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SAFE REFRIGERANTS

"Freon" is Du Pont's registered trade-mark for its fluorinated hydrocarbon refrigerants.

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...THROUGH CHEMISTRY

United States Court House,
Washington, D.C.
Justement, Elam & Darby, Architects

marble

can be used generously even if your budget is restricted...

Writes Architect Louis Justement: "There are few materials as satisfactory to the architect as marble.

"In the new United States Court House in Washington the total cost of the marble work was less than **3.5%** of the cost of the building — in spite of the fact that marble walls were used in all main corridors, all elevator lobbies, portions of wall in back of bench of all courtrooms as well as many individual purposes throughout the building."

For more complete data on the basic economy of marble write:

MARBLE MIA INSTITUTE OF AMERICA, INC.

108 FORSTER AVENUE. MOUNT VERNON, NEW YORK

UNARCO

ROYAL-AIRE *a distinctive conditioner featuring UNARCO "pump-down" control system*

It is doubtful that any air conditioner can match the efficiency and beauty of the UNARCO ROYAL-AIRE. This all-new conditioner provides "just right" cooling comfort, adding distinction to *any* setting.

Oversize cooling coils . . . accessible, hermetic motor-compressor units... and the exclusive UNARCO "pump-down" control system, which prevents compressor damage... are but a few outstanding features of the ROYAL-AIRE line.

Available in five capacities (3 to 15-ton) the ROYAL-AIRE is *balance-engineered!* This insures full cooling capacities and quiet operation under all conditions, producing a pleasurable climate and atmosphere for any size room.

The ROYAL-AIRE is eminently suited to comfort-cool dining rooms, taverns, drug stores, clothing stores, and offices... to cool wherever the *ultimate* in efficiency and long life is desired. Address Heating & Cooling Division for descriptive literature.

Union Asbestos & Rubber Company
332 So. Michigan Ave., Chicago 4, Ill.
Canadian Representative: Albern Universal Ltd., Toronto

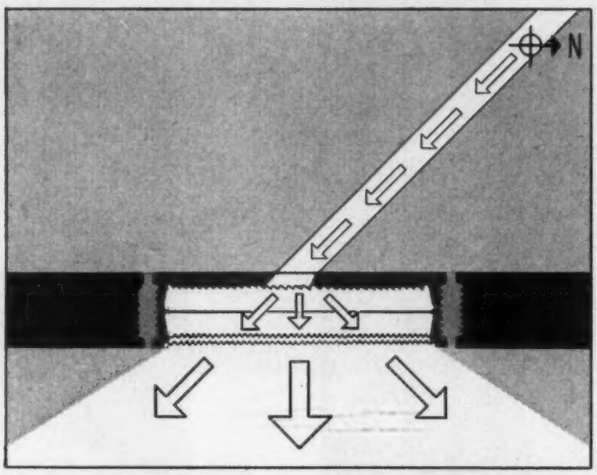
UNARCO

the *finest* in heating and cooling products *at no extra cost*

TESTED AND PROVED

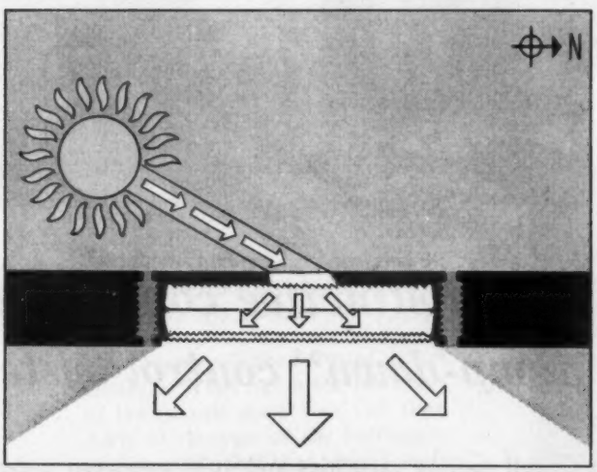
Glass panels bring cool daylight in through the roof

Light-Selective Toplite Roof Panels transmit desirable light; reject hot, glaring sun



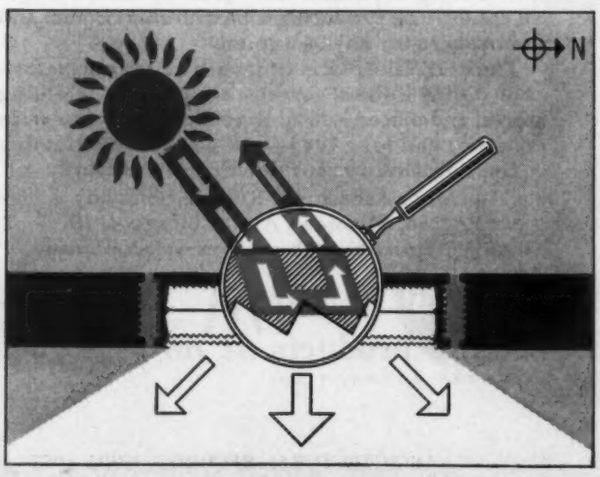
Transmits north light

Maximum transmission of north light is a desirable quality in toplighting because of its uniformity and freedom from glare and solar heat. Note how the prism structure of Toplite affords efficient transmission of north light.



Accepts winter sun

Since low winter sun is comparatively weak in relation to high summer sun as far as glare and solar heat are concerned, maximum transmission is again desirable. This illustration shows how Toplite accepts and transmits winter sunlight.



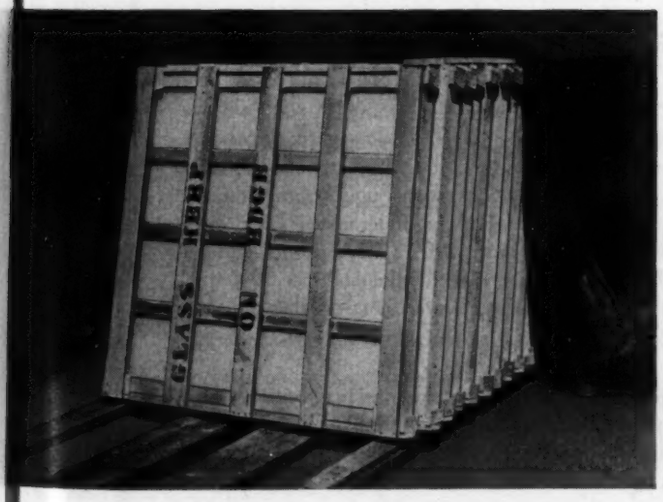
Rejects summer sun

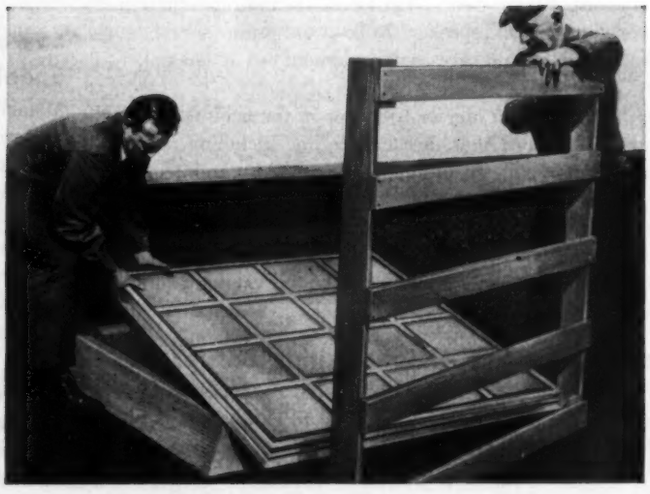
Other materials which transmit north light and low winter sun also transmit high percentages of light during the hot, summer months. Toplite rejects direct light and heat from hot, summer sun, but transmits much of the cool, north light.

Toplite installation at Campus Elementary School New Jersey State Teachers College at Glassboro— Glassboro, New Jersey
Dr. Thomas Robinson, President

Toplite Panels may be installed in continuous strip, pattern, or in individual panels. Use a Toplite panel as you do a lighting fixture. They permit daylighting of all building areas regardless of location or distance from exterior walls.

Edwards and Green, Camden, N. J., Architects
S. Levy & Company, Camden, N. J., General Contractor





Toplite Roof Panels are factory-fabricated . . . *ready to install*

They are shipped in individual crates marked to show correct orientation and directional positioning; for speed and ease in installation. Panels arrive on job site ready to install. They are set on prepared curbs and anchored ready for flashing by the roofer.

Write for free booklet on Toplite Roof Panels

The complete story of this great new advance in efficient utilization of free daylight is available in this new bulletin. For your free copy write today: Kimble Glass Company, subsidiary of Owens-Illinois, Dept. AR-4, Toledo 1, Ohio.

TOPLITE ROOF PANELS
AN (O) PRODUCT

OWENS-ILLINOIS
GENERAL OFFICES · TOLEDO 1, OHIO

Profit from the BIG Jobs with

LOWELL Sound Distribution Equipment . . . Clearly Superior

"Ear Level" sound for every installation !

Sound systems have come of age. More and more companies realize the important benefits of equipping their new or existing buildings with sound installations. Today almost every type of construction is a potential user of sound distribution equipment. Where clear, "Ear Level" sound reproduction is important, Lowell speaker baffles, fire-proof speaker enclosures, grilles and accessory equipment are in demand.

Only Lowell, the leader and pioneer in the field of low level sound dispersion, offers a complete line including over 100 scientifically designed products. That is why architects and sound engineers throughout the world call for Lowell equipment for the big jobs. These include airports, railroad stations, schools, hospitals plus industrial and commercial construction. Please write for the Lowell catalog and specifications today.

Lowell Standard Height Ceiling Baffles

with "Floating Conical Action." Lowell BL Series baffles are designed for flush surface mounting to conceal the speaker without the need of cutting holes in ceiling. "Floating Conical Action" distributes controlled sound uniformly for 360°. Diffusing cone is supported through rubber grommets to prevent metallic resonance. Aluminum construction with natural satin finish. Colored lacquer finishes available.

Five models to accommodate 6″ to 12″ speakers.

Lowell Recessed Protective Speaker Enclosures

Metal back cover speaker boxes ideal for any PA and intercom wall or ceiling installation. Rugged 18-gauge steel construction protects speakers from fire, rodents, dust, mortar. Rust preventive exterior finish. Eight models range from 4″ to 9″ deep. Larger models have heavily undercoated interior to prevent resonance. Complete with ¾″ knockouts and all mounting hardware. Available with adjustable plaster flange. Round, square, rectangular perforated metal speaker grilles to fit.

★ ★ ★

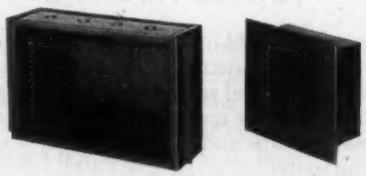
The complete Lowell line includes ceiling baffles, wall baffles, speaker grilles, combination speaker baffles and circline fluorescent light fixtures, mounting accessories, speaker enclosures, intercom equipment.

see our catalog in **S** or write for copy

HEARD EVERYWHERE

Lowell MANUFACTURING CO.

3030 LACLEDE STATION ROAD, ST. LOUIS, MO., U. S. A.
In Canada: Atlas Radio Corp., 560 King St., West, Toronto, Ontario

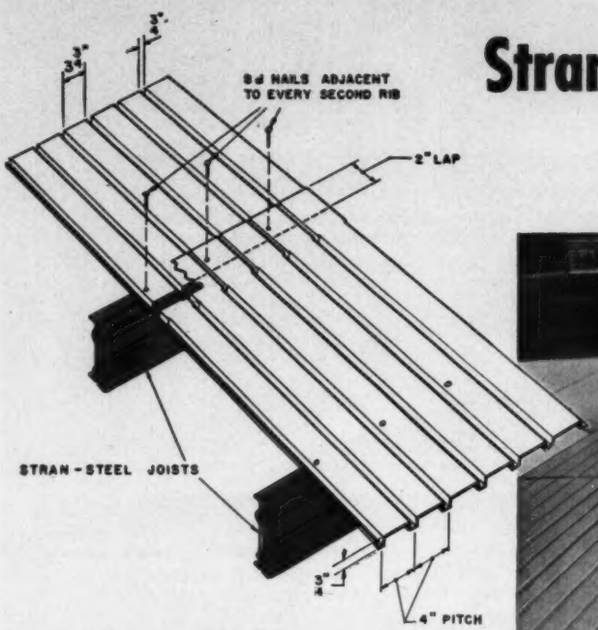


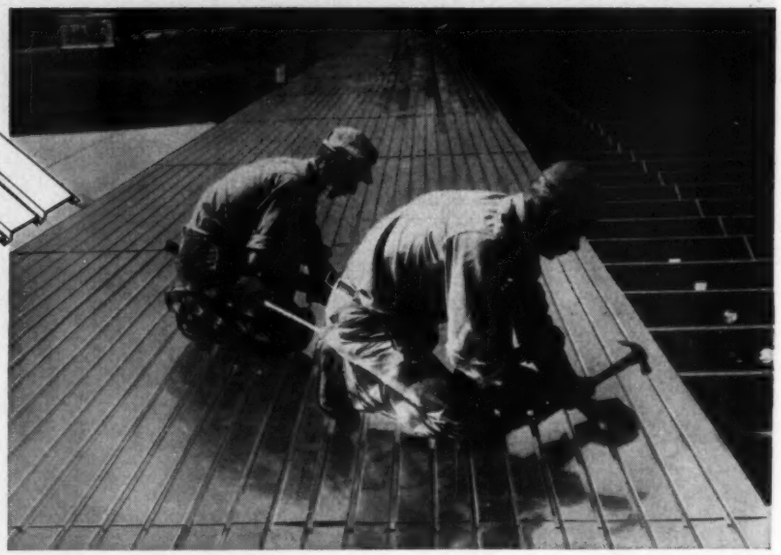
Box Type (P) Speaker Enclosures

Premium quality . . . at no extra cost

Stran-Steel® Galvanized Decking

for use with Stran-Steel Framing





Woodland Acres Shopping Center in Green's Bayou, Texas, utilizes 26-ga. Stran-Steel galvanized roof deck nailed to 9" Stran-Steel joists, on 24" centers. Built-up roof was applied over ½" fiber glass insulation. Architects: DUNAWAY AND JONES, Houston. Distributor: BUIE BLDG. MATERIAL CO., Houston.

STRAN-STEEL DECKING IS . . .

LIGHTWEIGHT but STRONG: Dead load savings up to 10 lbs. Total weight of this dry system, including 1" of insulation board, is less than 3 lbs. per sq. ft. Great strength-to-weight ratio assures maximum economy in materials.

ECONOMICAL: Competitive with poured-in-place decks. Galvanized coating assures long life . . . no painting is required.

EASY TO INSTALL: A 5-man crew can install up to 14,000 sq. ft. in an 8-hr. day. Insulation and built-up roofing can be applied *immediately* after erection. Erection is simplified by accurate fabrication and uniform pattern of decking.

AVAILABLE: On-the-spot distributors and dealers in all major building centers . . . with trained technical personnel to assist you in design and fabricating problems and adaptations to meet local conditions.

New Catalog!

Stran-Steel Div.
Great Lakes Steel Corp.
Ecorse, Detroit 29, Mich.

Please have your representative give me your new catalog and other information, without obligation. I am a: Builder ☐ Architect ☐ Engineer ☐ Owner ☐ planning the design or construction of: School ☐ Church ☐ Hospital ☐ Dwelling ☐ Commercial or Industrial Building ☐ Interior Steel Partitions ☐ Other_____

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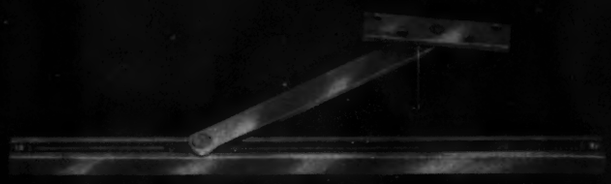
Company_____

Street_____

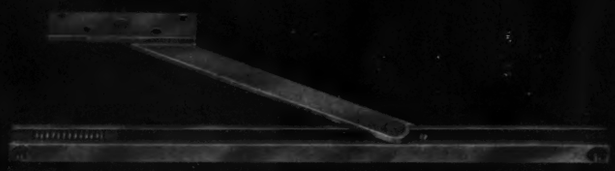
City_____ Zone____ State_____

B

Stran-Steel Division
GREAT LAKES STEEL CORPORATION
Ecorse, Detroit 29, Mich. • A Unit of
NATIONAL STEEL CORPORATION



No. 820 FRICTION DOOR HOLDER • Concealed Channel —90° opening (110° available) against spring cushion stop. Friction control, easily adjustable.
FEDERAL SPEC. NO. 1164

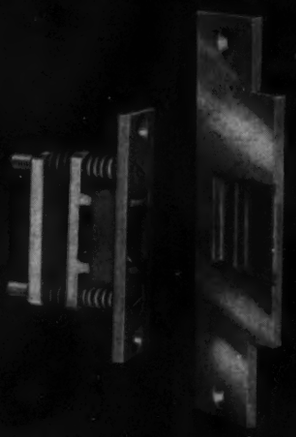


No. 870 FRICTION DOOR HOLDER • Surface applied channel—90° opening (110° available) against spring cushion stop. Friction control, easily adjustable.
FEDERAL SPEC. NO. 1165

DEDICATED

TO PEACE

AND QUIET



ROLLER LATCH • Rubber roller with adjustable tension.
Series RL—standard
Series RLV—FEDERAL SPEC. NO. 193

TYPE APL ARM PULL
Cast of bronze or cast aluminum—9" overall with 4" projection

GIRLS

584

DOOR PLATES • Cast aluminum or cast bronze. Plate is 1 3/8" wide, length as required. Characters 3/4" high—

SARGENT & GREENLEAF INC.

ROCHESTER 21, NEW YORK

HEAT ONLY THE OCCUPIED ROOMS—CUT FUEL COSTS with JOHNSON *DUAL* TEMPERATURE CONTROL

In most buildings today, certain offices continue to be occupied after regular working hours. Keeping those few offices comfortably warm, *without the expense of heating the entire building,* is a serious problem to building owners and managers. Installing separate steam mains is usually both impractical and too costly. Manual control of radiators in unoccupied offices is equally unsatisfactory.

The simple, effective answer to this "after-hours" heating problem is a modern *Dual* System of Johnson Automatic Temperature Control. Briefly, here's how it works:

During regular working hours, a Johnson *Dual* Thermostat in each office automatically maintains every space at the ideal comfort level. At the end of the day, all *Dual* Thermostats in the building may be reset, from a central control panel, to operate at *reduced, non-occupancy temperatures.*

In those offices which continue in use, merely pressing the button on the *Dual* Thermostat restores them to normal occupancy temperatures, *without changing the economy settings of the other thermostats in the building.*

Johnson *Dual* Control offers the finest in modern individual room temperature regulation—and at a tremendous reduction in fuel costs. Heating only the occupied rooms quickly saves enough fuel dollars to pay for the cost of the entire system!

These and many other important comfort and money-saving advantages of Johnson *Dual* Control are readily available to any new or existing building. Conversion of existing single temperature systems to Johnson *Dual* is both simple and inexpensive. An engineer from a nearby Johnson branch will gladly give you all the facts without obligation.

JOHNSON CONTROL
TEMPERATURE ↕ AIR CONDITIONING

PLANNING • MANUFACTURING • INSTALLING • SINCE 1885

JOHNSON SERVICE COMPANY
507 E. Michigan St., Milwaukee 2, Wisconsin

I'd like more information about Johnson Dual Temperature Control.

NAME_____

ADDRESS_____

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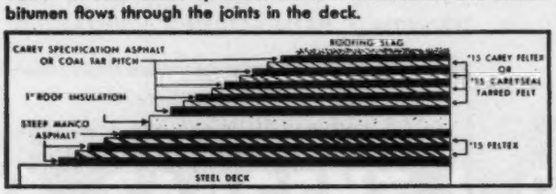
Most important development

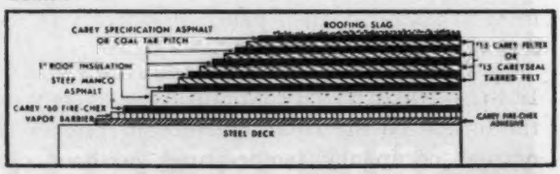
FIRE-CHEX

At the Carey Research Laboratories, this fire test of a conventional-vapor seal, with insulation and built-up roofing over steel deck, showed the dripping of asphalt from the vapor seal igniting as 1800° of heat builds up under the roof construction and melted bitumen flows through the joints in the deck.

Fire test of conventional-type built-up roof with new *Fire-Chex 1-ply Vapor Barrier* over the steel deck (see diagram). Here you'll note a *complete* absence of any dripping material and only slight burning of gases. Practically no fuel is contributed to the fire by vapor barrier.



Cross-section view of conventional-type 2-ply asphalt vapor barrier, insulation and roof.


CAREY SPECIFICATION ASPHALT OR COAL TAR PITCH
ROOFING SLAG
1" ROOF INSULATION
STEEP MANCO ASPHALT
CAREY #60 FIRE-CHEX VAPOR BARRIER
#15 CAREY FELTER OR #15 CAREYSEAL TARRED FELT
CAREY FIRE-CHEX ADHESIVE
STEEL DECK

Cross-section view of Fire-Chex type 1-ply asbestos-plastic vapor barrier, insulation and roof.

in fire-safety for buildings . . .

VAPOR BARRIER

for built-up roofs

Perfected after years of research and testing—now ready to help you plan buildings with a new all-time high in fire safety!

Carey

Quick Facts About

Fire-Chex Vapor Barrier

MATERIAL REQUIRED FOR ONE SQUARE OF ROOF AREA

1 roll Fire-Chex Vapor Barrier—
weight approximately 60 lbs. per 114 square feet:
size 38 feet long, 36 inches wide
1 gallon Fire-Chex Adhesive

Specify Fire-Chex asbestos-plastic vapor barrier for built-up roofs. Remove all doubt about fire-safety. Fire-Chex vapor barrier does not release excessive combustible gases and melting asphalt.

In Carey Fire-Chex, you have a vapor barrier that does not contribute to fire or cause it to spread. Even when installed over a standard steel deck that becomes red hot in a fire, Fire-Chex remains intact. Does not release melting asphalt and excessive gases.

The cost of Fire-Chex is just a few cents more per square of roof area than the conventional asphalt vapor barrier. Mail the coupon below for specifications, the services of a Carey Industrial Sales Engineer, and, if you wish, a private showing of our film demonstrating the unprecedented fire-safety that Fire-Chex Vapor Barrier brings to built-up roofs of all types

The Philip Carey Mfg. Company
LOCKLAND, CINCINNATI 15, OHIO
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The Philip Carey Co., Ltd., Montreal 3, P. Q.

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Industrial Insulations • Careystone Corrugated Roofing and Siding • Built-up Roofing • Careyduct • Asphalt Plank Asphalt Paints and Coatings • Industrial Flooring • Other famous products for industry since 1873.

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☐ *Please send specifications and details of new Fire-Chex Vapor Barrier.*
☐ *Please have Carey Industrial Sales Engineer call.*
☐ *Arrange for showing of your film on Fire-Chex Vapor Barrier*

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FIRM _____
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CITY _____ *ZONE* ____ *STATE* _____

THIS GREAT NEW PRODUCT PROVIDES

DAYLIGHTING + FIRE PROTECTION

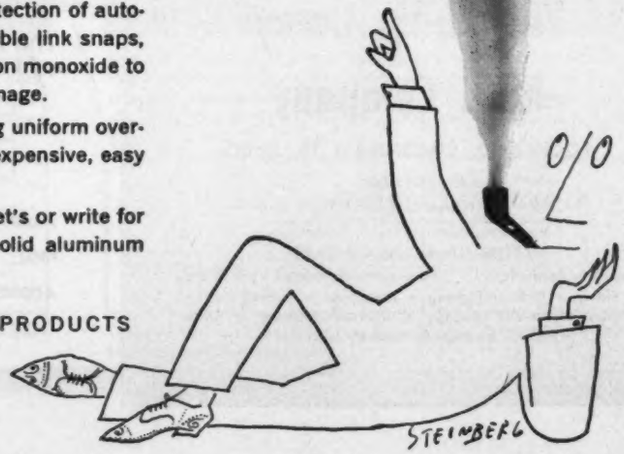
WASCOLITE PYRODOME

. . . could mean the difference between damage and disaster in your clients' plants

The WASCOLITE PYRODOME gives clients the added protection of automatic fire venting. Under excessive heat, PYRODOME's fusible link snaps, and the dome flies open. This allows heat, smoke and carbon monoxide to escape, and thus helps to contain the fire and minimize damage.

Even if there is no fire PYRODOME is on the job supplying uniform overhead daylighting through its Wascolite acrylic dome. It is inexpensive, easy to install, and cuts lighting costs.

Look into the WASCOLITE PYRODOME today . . . see Sweet's or write for illustrated catalog. Also available: Wasco Pyrovent with solid aluminum cover for venting only.



• TOP SPECIALISTS IN DAYLIGHTING AND FLASHING PRODUCTS

WASCO PRODUCTS, INC.
82D Fawcett Street, Cambridge 38, Mass.
Pat. Nos. 2610593, 2693156 and pats. pend.

Something New Under the Sun

. . . *Alodized* Aluminum Roofing

No. 1 in a series on protective finishes for architectural aluminum.

On the Overly aluminum roof for Wyoming State Hospital, "Alodine" greatly increases corrosion-resistance, provides a matte-green finish that simulates the patina of copper and is sun-fast and stable, reduces glare, and masks reflectivity.

Wyoming State Hospital, Evanston, Wyoming

***Roof By:* Overly Manufacturing Co., Greensburg, Pa.**

What Alodizing is

AND WHY YOU SHOULD SPECIFY IT.

"Alodizing" is a process using the ACP chemical "Alodine" that converts the aluminum surface to a continuous non-metallic layer. It adds years to the metal's resistance to corrosion, and provides a perfect bond for paint, lacquer, vitreous enamel and adhesives.

One type of "Alodine" protects aluminum yet preserves the original appearance of the metal; another produces a sun-fast stable green that ranges from a grey-green iridescence to the deep patina appearance of weathered copper; still another produces an iridescent brown.

All types reduce glare and reflectivity. All add to aluminum's usefulness, lightness and durability, particularly at the seaside, in industrial areas, and in contact with mortar.

IF IT'S ALUMINUM, BE SURE IT'S ALODIZED.

A few of the many typical building products that should be Alodized: Roofing, Siding, Shingles, Gutters, Spouting, Jalousies, Screens, Hardware, Awnings, Blinds, Wall Tile, Sash and Door Frames, Curtain Wall Panels, Partitions, Heat and Vent Ducts, Trim, Cabinets, Refrigerating and Air Conditioning, Furniture Equipment, Light Fixtures.

For further information on Alodized aluminum, and other applications of the "Alodine" finish, write or call.

CHEMICALS ACP PROCESSES

Alodine Trademark Reg. U.S. Pat. Off.

Since 1914, Pioneering Research and Development in Metal Protection

AMERICAN CHEMICAL PAINT COMPANY

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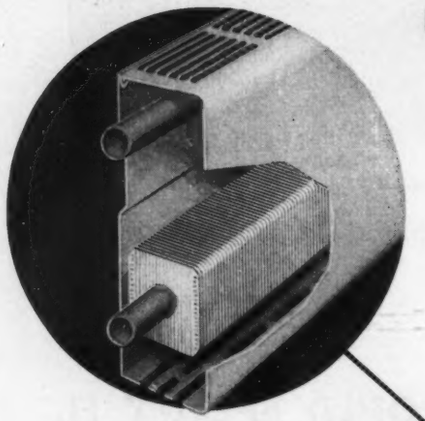
a new major advancement...

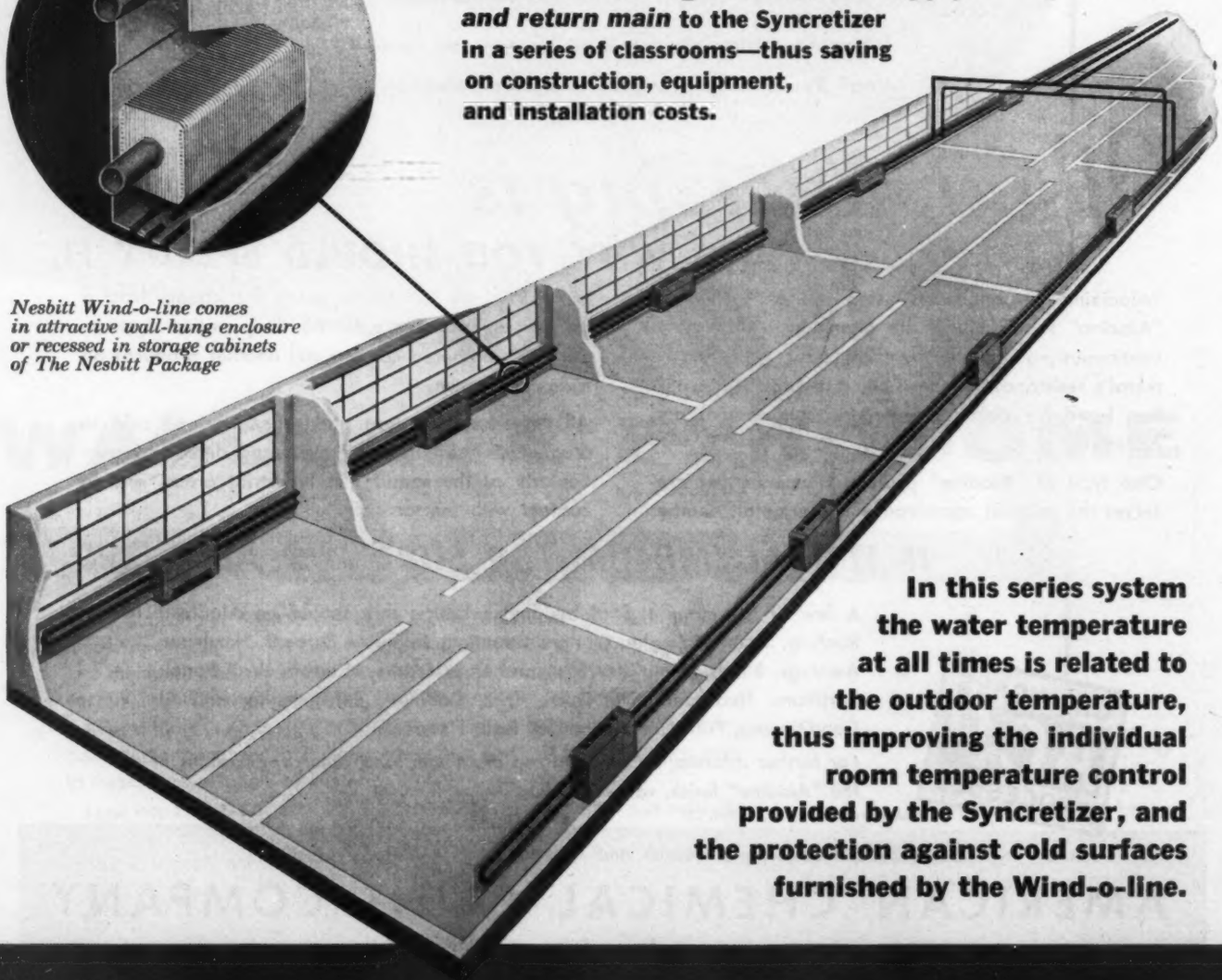
Nesbitt

SERIES HOT WATER



Nesbitt Wind-o-line comes in attractive wall-hung enclosure or recessed in storage cabinets of The Nesbitt Package

Nesbitt Syncretizers and Wind-o-line may now be combined in a forced hot water heating and ventilating system in which the *Wind-o-line tubing becomes the supply and return main* to the Syncretizer in a series of classrooms—thus saving on construction, equipment, and installation costs.



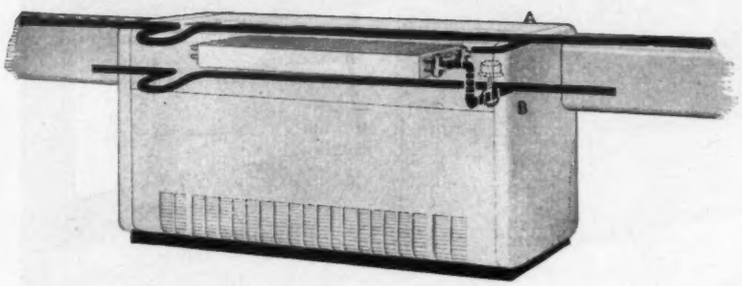
In this series system the water temperature at all times is related to the outdoor temperature, thus improving the individual room temperature control provided by the Syncretizer, and the protection against cold surfaces furnished by the Wind-o-line.

Telephone, wire, or write today for more information:

school mechanical system costs **reduced**

classroom comfort and protection **increased**

WIND·O·LINE SYSTEM



Packaged piping reduces installation cost. (a) Crossover return tubing, expansion loop, and air vent fitting come pre-assembled and connected to the heating element. (b) Crossover supply tubing, expansion loop, and balancing valve are furnished installed, leaving a minimum of piping at the site.

IF YOU are interested in school construction costs, it will pay you to study how this latest Nesbitt development meets today's needs and gives more for the school-building dollar.

In forced hot water applications Nesbitt Syncretizer heating and ventilating units with Wind-o-line radiation may be installed in series-loop circuits, in which the copper tubing of the Wind-o-line system serves as the only required supply and return piping for multiple-classroom groupings or entire wings.

COSTS REDUCED *Savings in equipment:* Smaller pipes and pumps are required because the Nesbitt System is designed to provide the needed heating capacity with water quantities of from one half to one third those required in conventional systems. Saves on both first cost and operating cost.

Savings in construction: Wind-o-line supplies Syncretizers, eliminating costly pipe trenches, mains, runouts and pipe covering in much of the building. Other piping is simplified.

Savings in installation: Mains and piping are smaller, shorter, simpler. Packaged piping within the Nesbitt Syncretizer unit ventilator reduces installation labor at the site. See above.

COMFORT INCREASED *Variable water temperature control:* Relating the available heat directly to outdoor temperatures improves the control of individual room temperature by the Syncretizer.

Improved cold surface protection: Because the system water temperature increases as outside temperature falls, Wind-o-line protection against cold window downdraft and bodily heat loss is continuously related to actual needs.

Off-time temperature maintenance: Without additional investment in equipment, the Nesbitt System maintains safe basic building temperatures during overnight, holiday, week-end shutdowns.

at no extra cost to you:

Nesbitt schoolroom equipment

upgraded

new hardtop sunboard

Durable laminated plastic, resists cracking, chipping, and abrasion. Easy to clean. Available in five decorative colors.

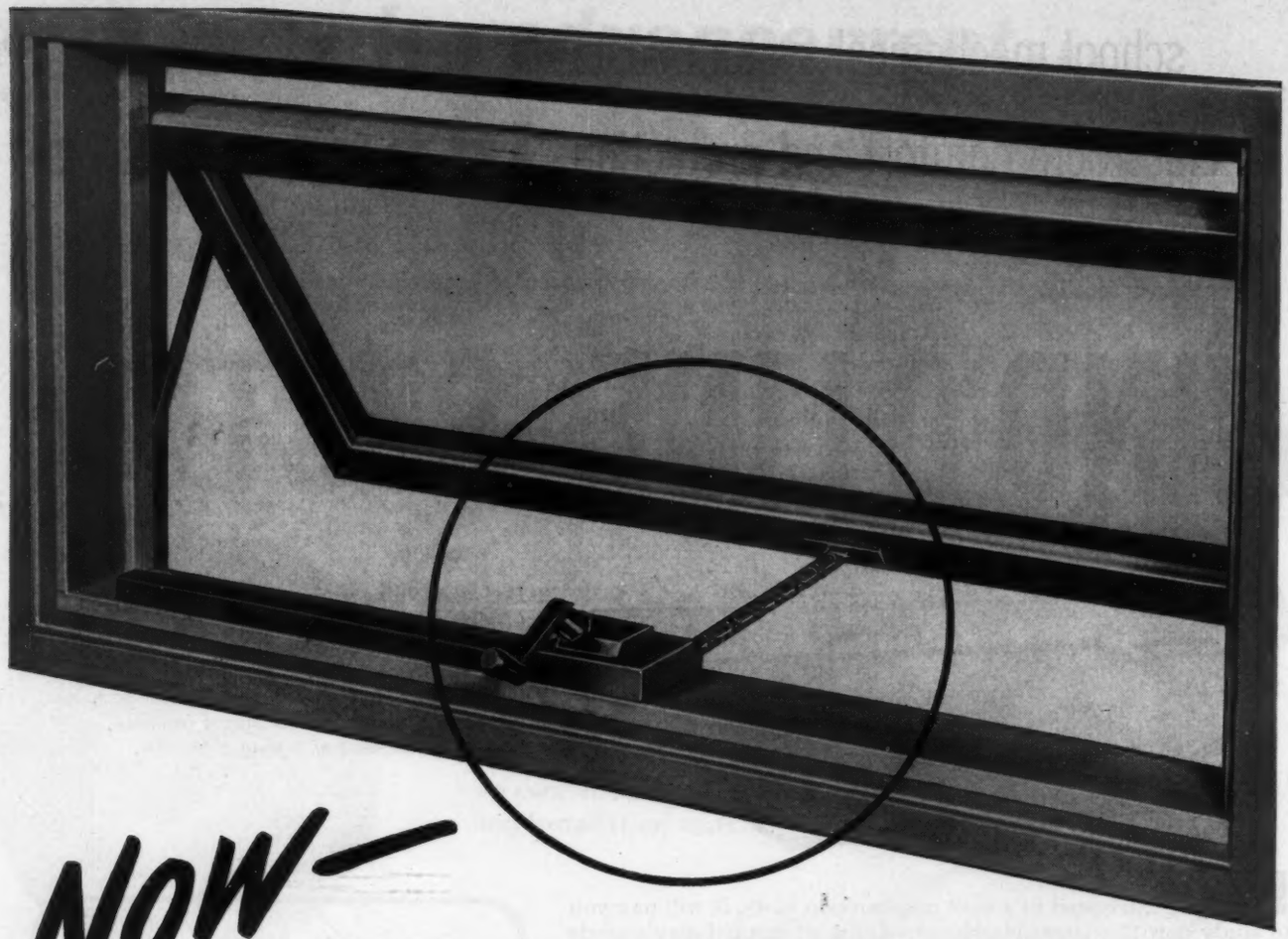
new attractive colors

Nesbitt Syncretizers, Storage Cabinets, Wind-o-line, and Sill-line Radiation are now available in six harmonious colors.

new shallow wall box

A new Nesbitt air intake (2⅛" deep) is suitable for either prefab panel or masonry walls. Its vertical louvres provide better elimination of air-borne water than wall boxes of conventional design. Shown below.

Made and sold by John J. Nesbitt, Inc., Philadelphia 36, Pa. — Sold also by American Blower Corporation



NOW—

A NEW, COMPLETELY DIFFERENT GETTY OPERATOR AND HINGE FOR POPULAR AWNING-TYPE WINDOWS

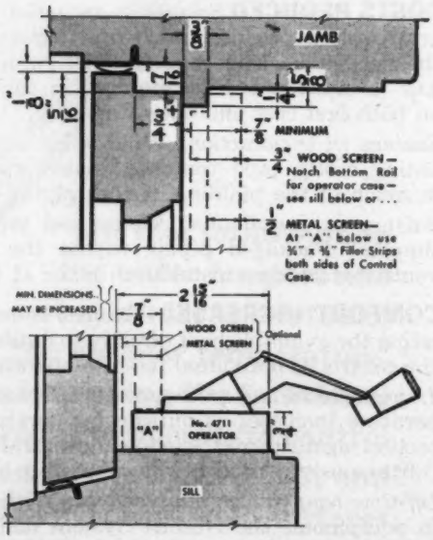
Here's the best operator-and-hinge set you can offer for popular awning-type windows. Its simplified construction makes other models completely out of date. It's easier both to use and to install.

The operator itself is designed on a new, completely different principle. Of the worm-and-gear type, it works with a chain which becomes rigid when extended in opening a window.

This new Getty No. 4711 Set holds the window securely in any open position—closes and locks it *tightly* without disturbing the screen. The hinge drops the sash from 4½ to 6 in., so that the outside of sash may be cleaned from inside the room. Both operator and hinge can be quickly and easily installed. There's no complicated hardware to fuss with or get out of order.

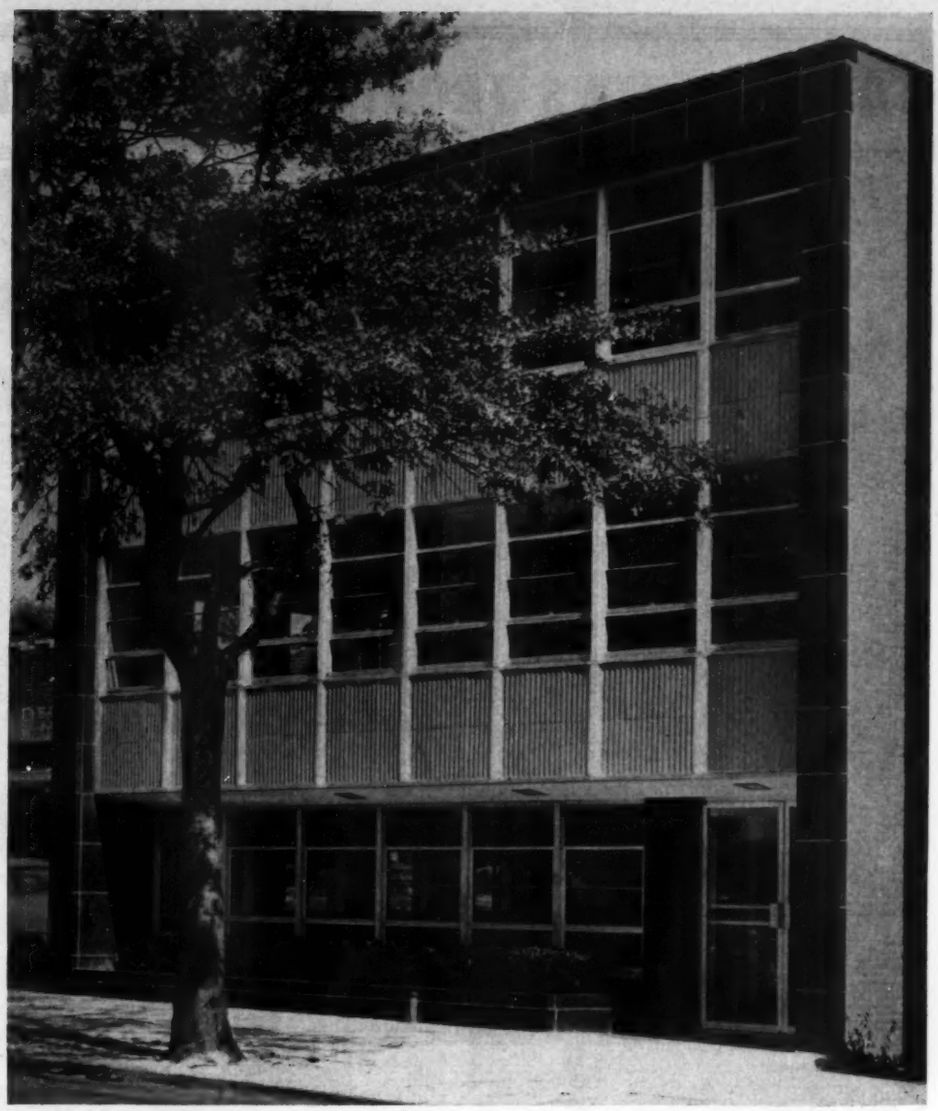
Specify Getty No. 4711 Sets for windows from 14 to 30 in. high and up to a maximum width of 48 in. Set #1 is for windows 14-17⅞ in. high; Set #2 for windows 18-23⅜ in. high; Set #3 for windows 23½-30 in. high. For complete information, including specification data, see your hardware consultant or write us direct.

Remember—More Getty Operators Are Used on Casements Today Than All Other Makes Combined!



H. S. GETTY & CO., INC., 3348 NORTH 10TH STREET, PHILADELPHIA 40, PA.

Canadian Representative: A. N. Ormsby Co., 23 Scott St., Toronto



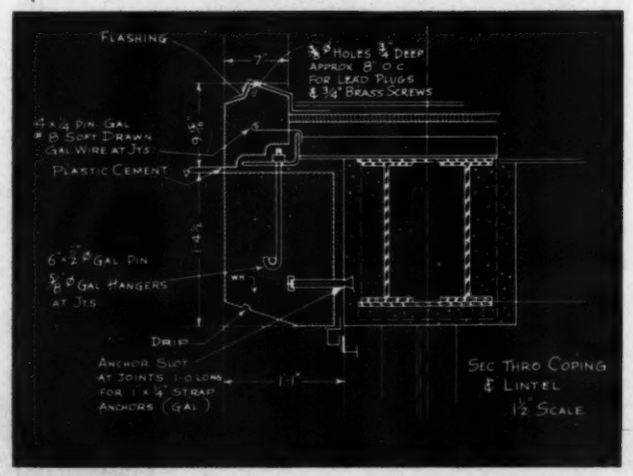
OFFICE BUILDING
WASHINGTON, D. C.

Ronald S. Senseman
—Architect

Bainum Construction Co.
—Builder

For fluted spandrel panels, light blue Architectural Terra Cotta was chosen for pleasing contrast to the rich burgundy of sills, coping, and window surrounds.

Give small buildings colorful individuality with Architectural Terra Cotta


FLASHING
7"
⅜" HOLES ¾" DEEP APPROX. 8" O.C. FOR LEAD PLUGS & ¾" BRASS SCREWS
4"x¼" PIN GAL. # 8 SOFT DRAWN GAL WIRE AT JTS
PLASTIC CEMENT
6"x2" GAL PIN
⅜" GAL HANGERS AT JTS
DRIP
ANCHOR SLOT AT JOINTS 1'-0" LONG FOR 1"x¼" STRAP ANCHORS (GAL.)
SEC THRO COPING & LINTEL
½ SCALE

Creative design is stimulated by Architectural Terra Cotta's plasticity of form, color and texture. Because it is custom-made by Federal Seaboard craftsmen, you can select just the right texture and choose any color under the sun. Architectural Terra Cotta is custom-made to your precise specifications, in units large or small, plain surfaces or decorative sculpture, for interiors or exteriors. To these advantages of Architectural Terra Cotta add still another—minimum maintenance. Simple soap and water washings retain indefinitely the original richness and beauty of this time-proved building material.

Construction detail, data, color samples, estimates, advice on preliminary sketches, will be furnished promptly without charge on Ceramic Veneer and Architectural Terra Cotta.

FEDERAL SEABOARD
TERRA COTTA CORPORATION

F S T C

10 East 40th Street, New York 16, N.Y.
PLANT AT PERTH AMBOY, NEW JERSEY

ON THE NEWS FRONT WITH STRUCTURAL STEEL

Coliseum—Circuses, rodeos, ice shows, and basketball games will soon play beneath one of the world's largest structural steel domes, now under construction at Charlotte, N. C., and expected to be completed early this year. The coliseum will have a capacity of 10,000 permanent and 3,000 temporary seats, together with large open space for exhibitions and conventions. Aisles and passageways are designed so that the building can be emptied in four minutes.

1,000 tons of Bethlehem structural shapes were used in building the coliseum. The 160-ft-long ribs, pre-assembled on the ground into seven 22-ft 6-in. sections, were erected with crawler cranes and supported temporarily by a center tower which was removed after the entire roof frame was in place. A steel tension ring 332 ft in diameter, resting on columns, absorbs the tensile stresses of the dome.

Near the coliseum is an auditorium designed for theater and concert presentations. The auditorium, seating 2,500 people and with a 100 by 50-ft stage, has a framework built of 300 tons of Bethlehem structural shapes.

Architects for the coliseum and auditorium were A. G. Odell, Jr., and Associates of Charlotte, N. C. *Structural Engineers:* Severud, Elstad and Krueger, New York City; *General Contractor:* Thompson and Street Co., Charlotte; *Steel Fabricator and Erector:* Southern Engineering Co., also of Charlotte.

BETHLEHEM STEEL COMPANY, BETHLEHEM, PA.

On the Pacific Coast Bethlehem products are sold by Bethlehem Pacific Coast Steel Corporation

***Export Distributor:* Bethlehem Steel Export Corporation**

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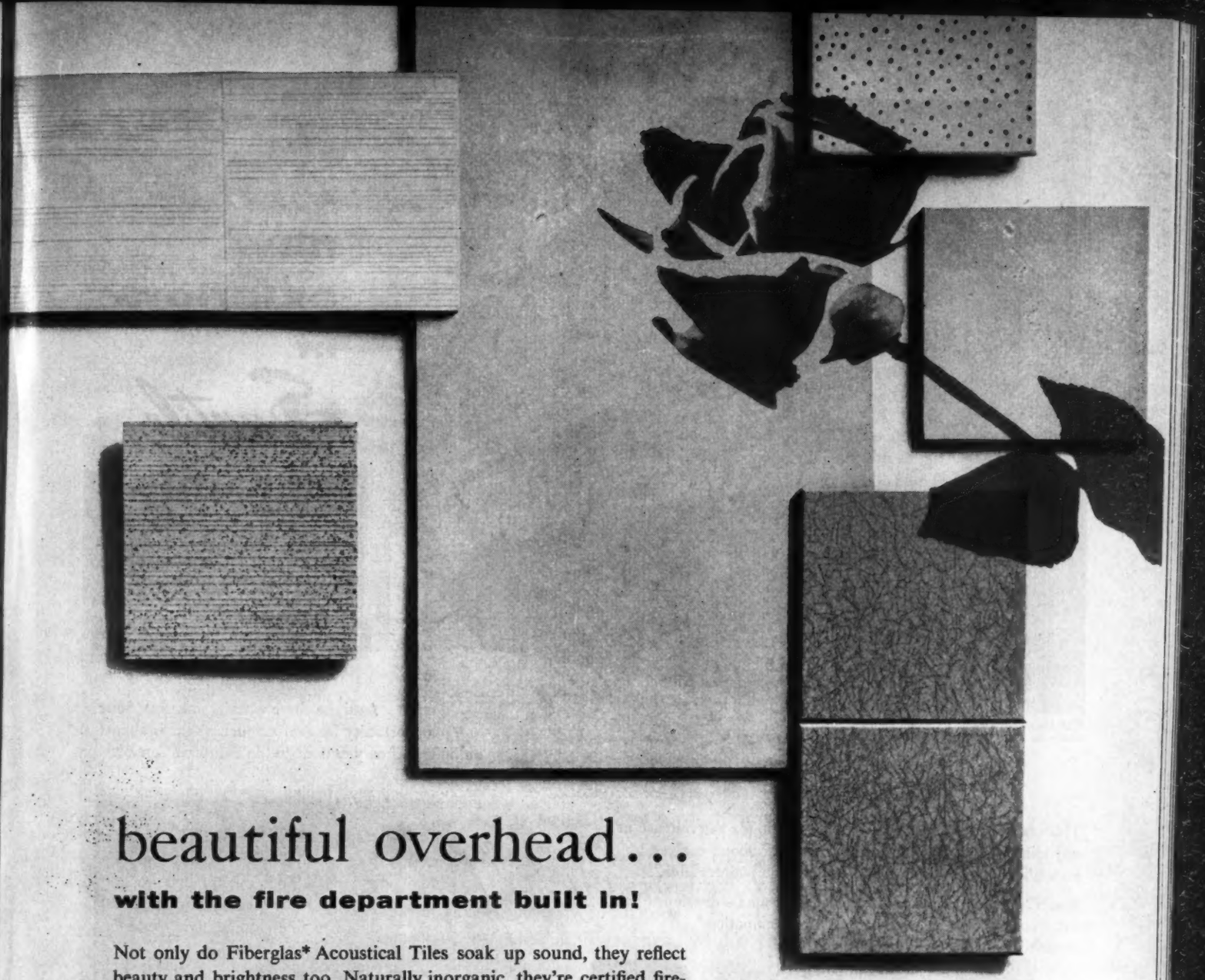

beautiful overhead...

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Not only do Fiberglas* Acoustical Tiles soak up sound, they reflect beauty and brightness too. Naturally inorganic, they're certified fire-safe, they won't shrink or swell, they keep their good looks through long, carefree years of service.

But here's the clincher . . . Fiberglas Ceilings are the lowest cost fire-safe acoustical ceilings you can specify. What more could you ask for? If it's more information, just write: Owens-Corning Fiberglas Corporation, Dept. 68-D, Toledo 1, Ohio.

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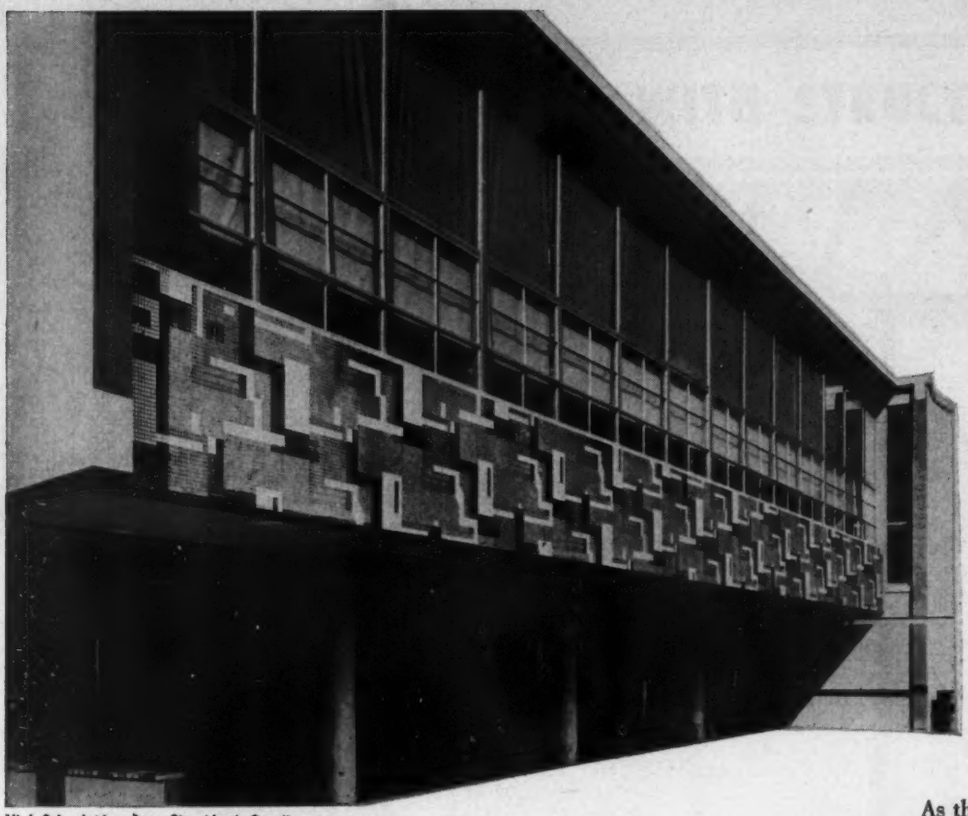

High School, New Bern City, North Carolina
Architects: Burett H. Stephens, Robert H. Stephens

new exteriors in *Suntile* ceramics

As these three exteriors suggest, your opportunity for surface enrichment is almost unlimited when you use Suntile Satinized Ceramics.

This matt-finish, natural clay tile is suitable for exterior use in any climate. Equally serviceable in walls or floors, it gives your clients lasting beauty—with minimum maintenance.

You'll like the color range of Suntile Ceramics—developed by color authority Faber Birren. And the combination of satinized finish and smaller sizes* permits interesting effects of pattern and texture.

*½" x ½", 1" x 1", 1" x 2", 2" x 2"

Brown's Interiors,
Miami, Florida
Architect: Walter W. Baggesen

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Normandale Shopping Center,
Montgomery, Alabama
Architects: Sherlock, Smith & Adams

THE CAMBRIDGE TILE MFG. CO.
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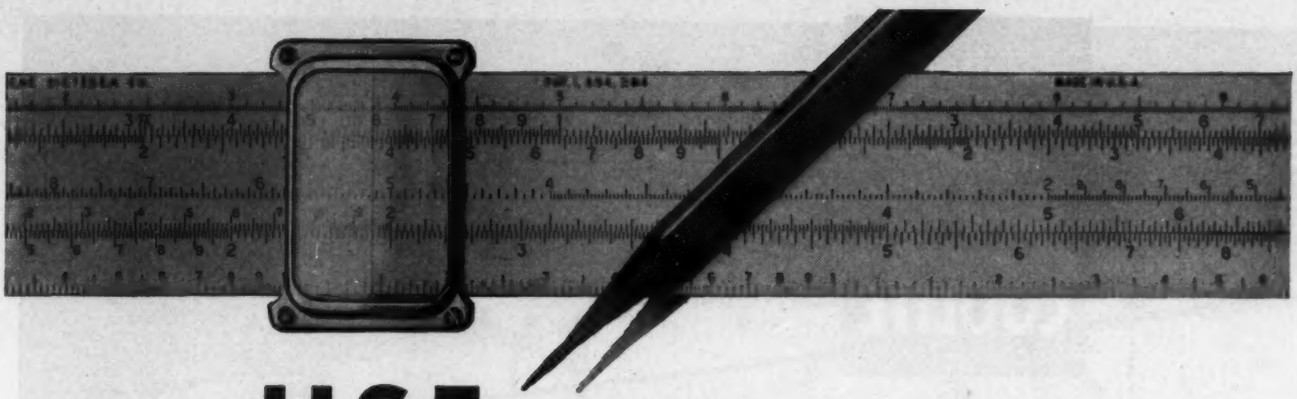
Cincinnati 15, Ohio



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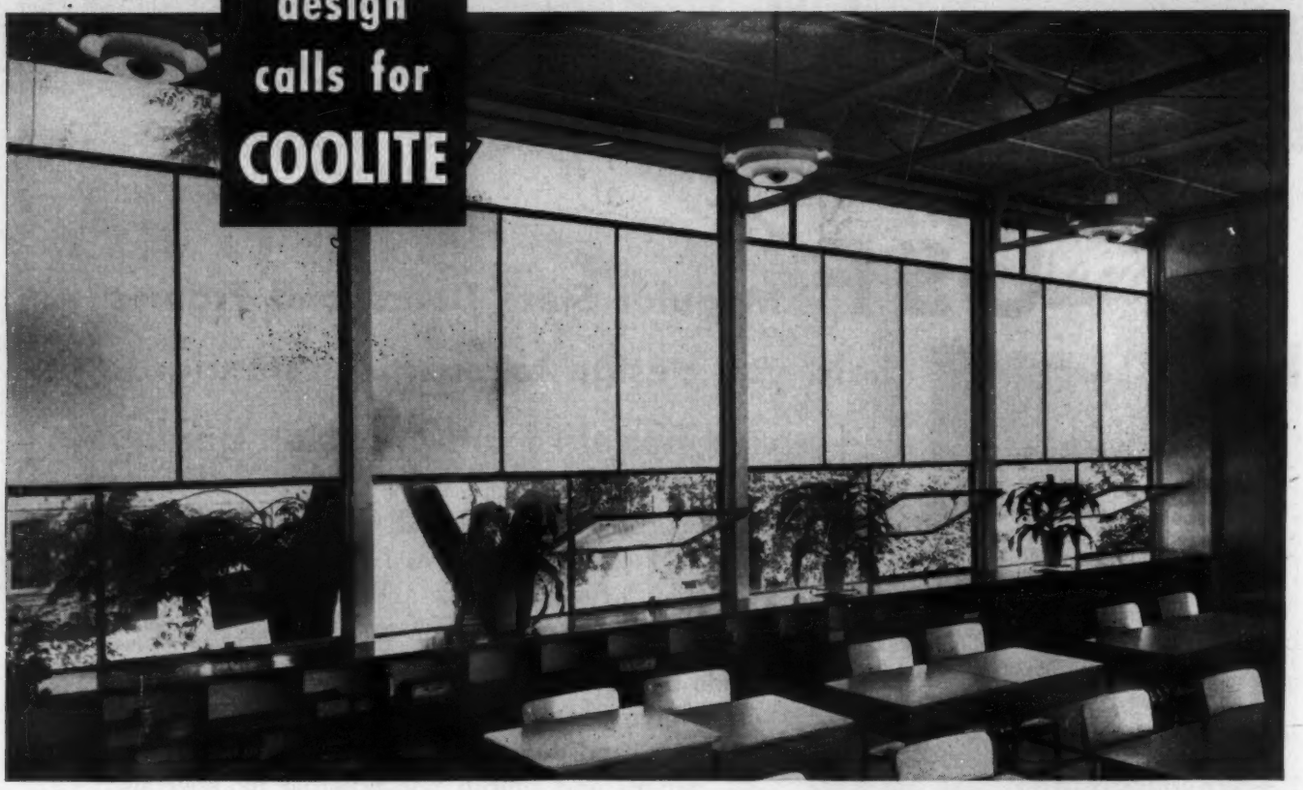
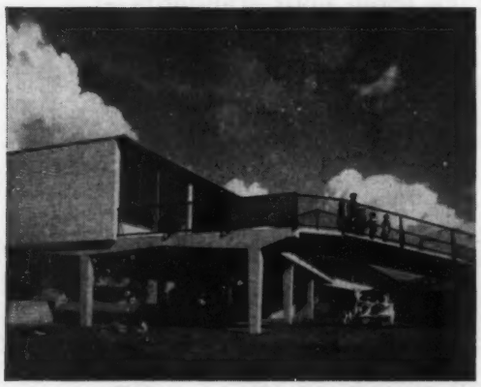
Perfected design, proved manufacturing methods and years of field service records are assurances of the quality and easy installation USF Steel Doors and Frames lend to every project.

modern design calls for COOLITE



New Thomy Lafon Elementary School, New Orleans, La.; Curtis & Davis, Architects; A & O Builders, General Contractors

Mississippi Heat Absorbing, Glare Reducing Glass Brightens Classrooms Without Excessive Solar Heat or Eye-Fatiguing "Raw" Sunlight



The Thomy Lafon School, New Orleans, La., acknowledged to be an outstanding modern design, makes extensive use of Coolite, Heat Absorbing, Glare Reducing Glass. It's unique qualities fit the aim of the architects and engineers, Curtis & Davis, to obtain "the ultimate in scientific achievement for natural lighting . . . a truly functional architecture adapted to human values and physical needs." For Coolite floods classrooms with softened, glare-free light for easier seeing . . . absorbs up to 50% of the solar heat to help keep interiors comfortable.

Coolite removes the harmful qualities of "raw" sunlight . . . helps students see better, feel better, work better. Coolite permits use of large glass areas without undue heat . . . makes rooms appear larger, friendlier.

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Mississippi maintains an experimental school building on factory grounds for the study of daylighting. Take advantage of the company's wide experience. It's technicians are ready to help you with every daylighting problem.

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A neat solution to air conditioning a department store without disrupting sales was worked out by Carrier Corporation engineers for Hess Brothers, Allentown, Pa.

Key elements in the installation are Kno-Draft High Pressure Air Diffusers. These permit use of smaller than ordinary ducts, yet provide *draftless* air distribution and equalized temperature throughout the area. Built-in sound baffles assure quiet air delivery.

Installation was done in quarter sections on each floor simultaneously. Thus, only minimum rearrangement of selling space was necessary.

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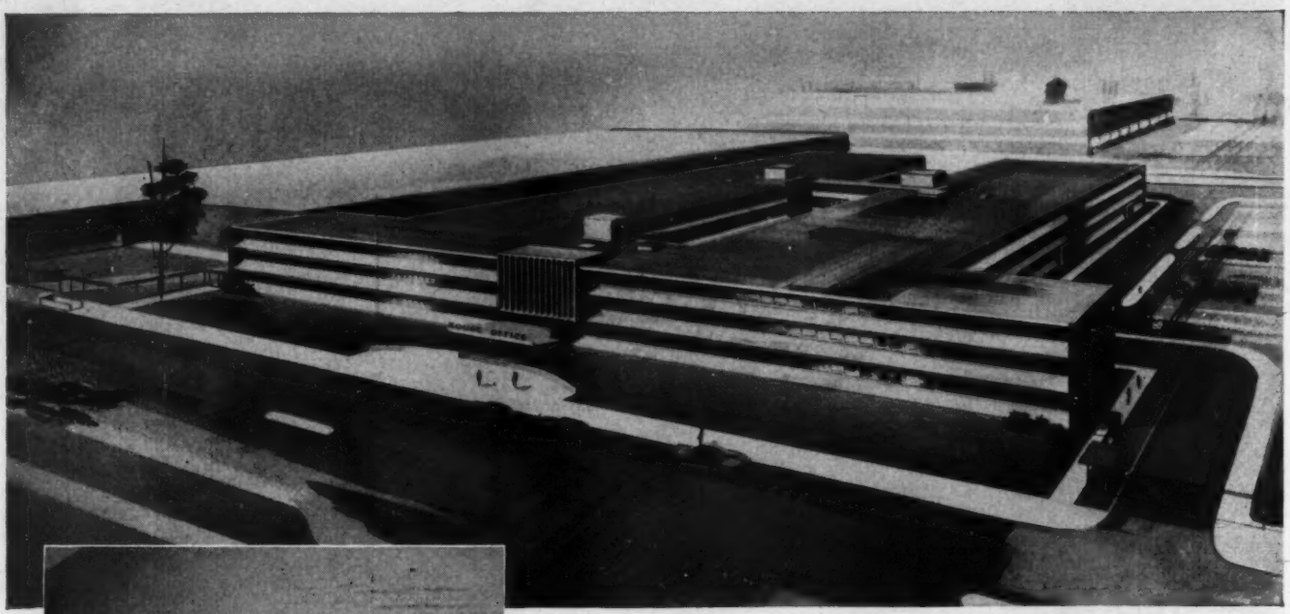

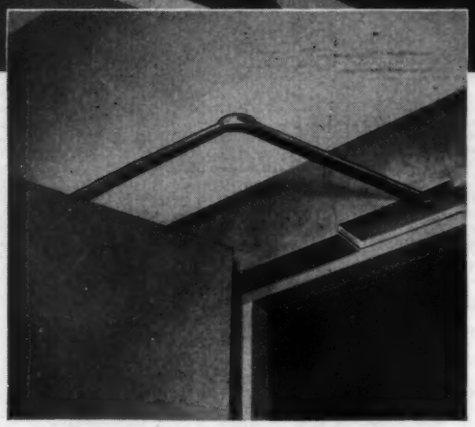

See how unobtrusively the "Inador" installs, as shown here on an interior door of Ford's new Rouge Office Building, Dearborn, Mich. Eberle M. Smith Associates, Inc., Dearborn, Mich. are the architects and Long Construction Company, Kansas City, Mo., the contractors.

Only The "INADOR" has all these top-quality NORTON features.

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Only a Liquid Closer gives so much *Rugged Dependability!*

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NORTON *"INADOR"*

Headquarters for five Ford manufacturing divisions will be the new Rouge Office Building at Dearborn, Michigan. The 3-story, 369,000 square foot structure, utilizing the unusual "lift slab" method of construction, features handsome, modern styling. And it's designed, too, to "stand-up" under unusually heavy use, for the years to come!

As a result, it represents an ideal application for Norton "Inador" Closers, which were selected for interior door control. The "Inador's" construction preserves the building's trim, functional beauty. Yet, since the "unseen" mechanism is of the true Liquid Type, it provides the full measure of reliability —for smooth, low-maintenance operation in heavy-traffic use!

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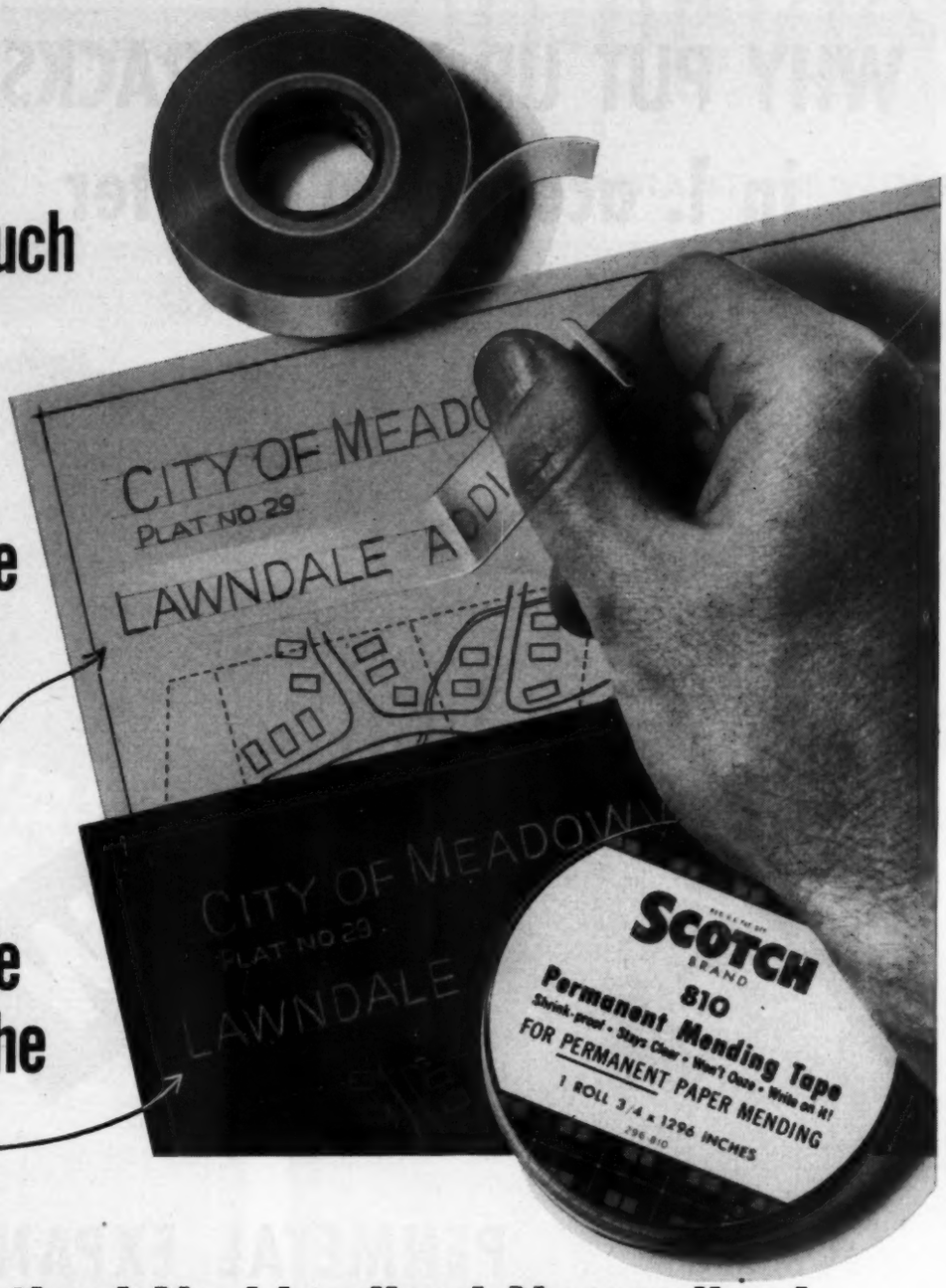

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in 1. acoustical plaster
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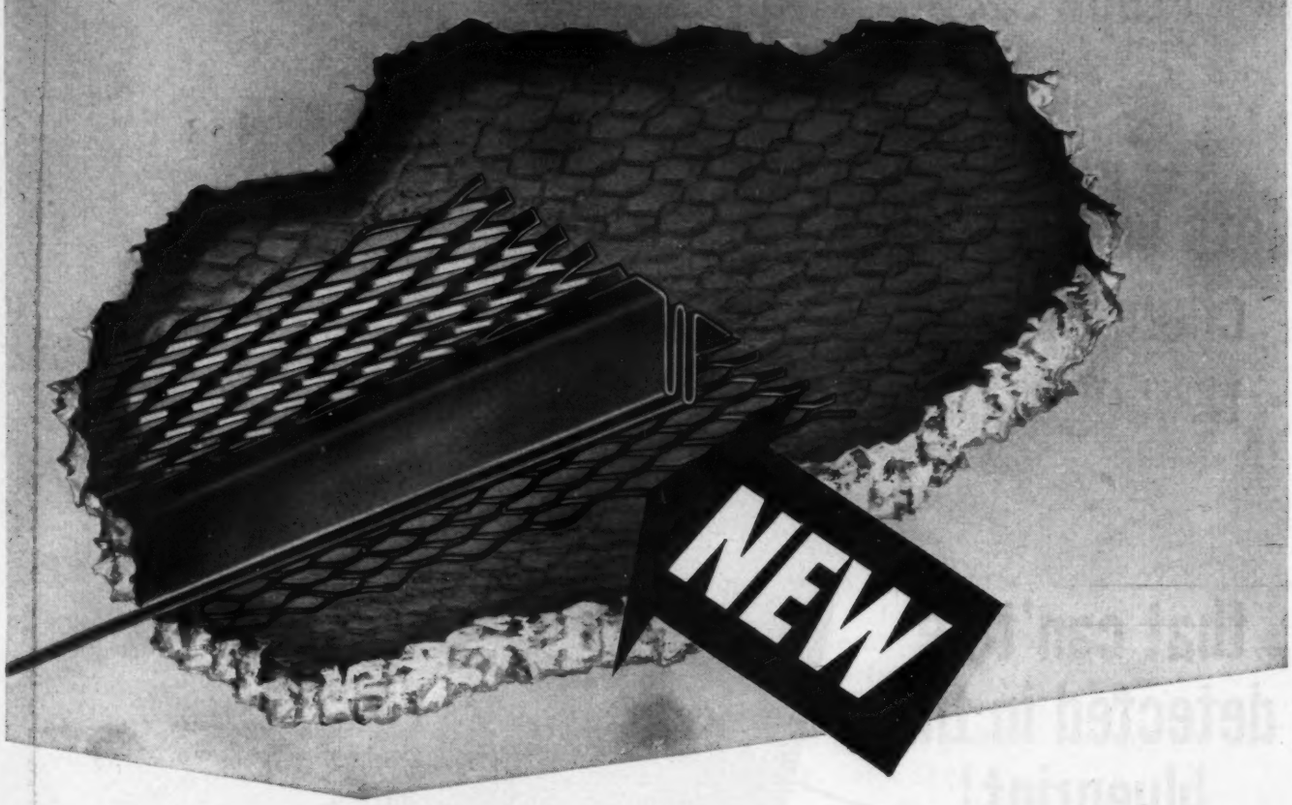

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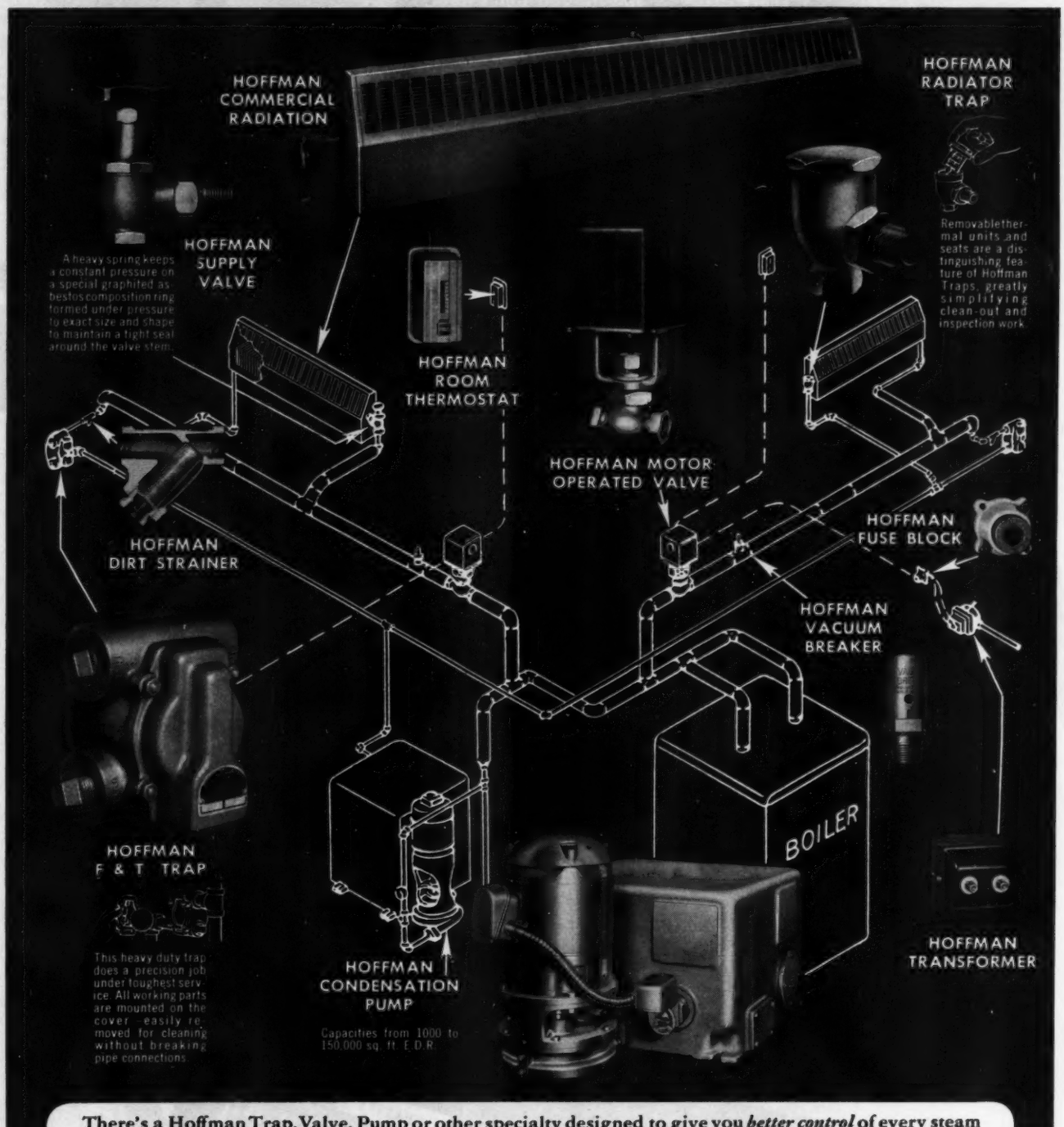
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Please be sure to Indicate Color Preference Here

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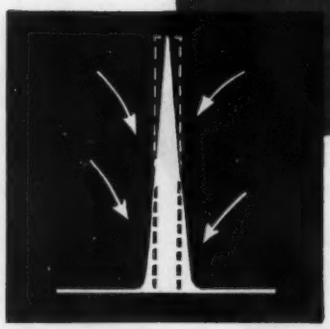

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Standardized encased units arranged for quick, economical installation

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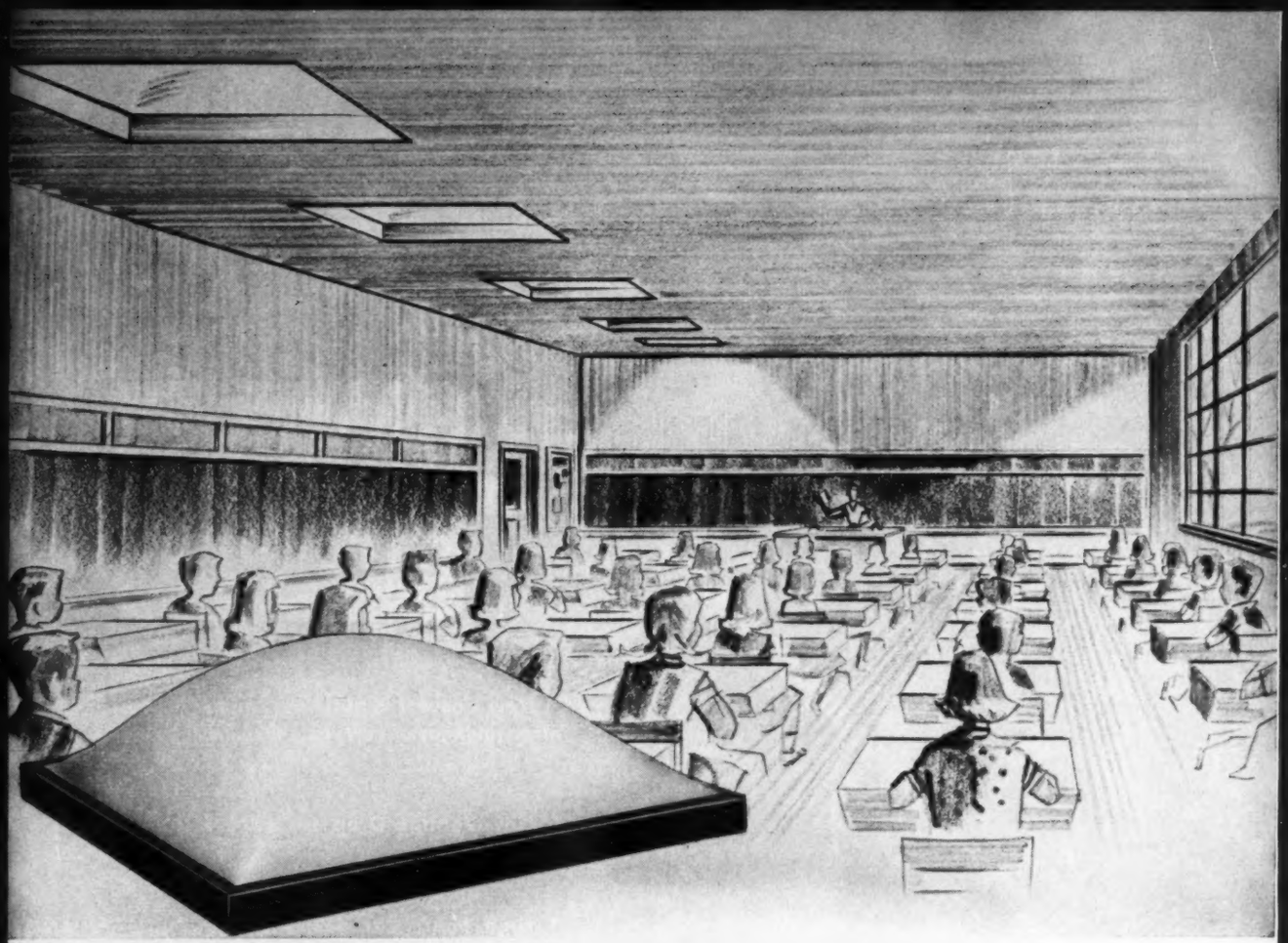

Uniform daylighting with

domed PLEXIGLAS skylights

The most practical way to provide an even level of daylight throughout a room is to use skylight units equipped with PLEXIGLAS domes. Installed over areas farthest from windows, they bring the amount of daylight into balance, reduce electric lighting costs, permit lower ceiling heights.

By specifying skylights with domes formed from PLEXIGLAS acrylic plastic, you obtain:

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Durability—The structural rigidity of the dome shape, plus the strength, resilience and proven weatherability of PLEXIGLAS, result in safety overhead and trouble-free service.

Easy Installation—Skylight units are prefabricated, complete with weather-proof framing for the dome. They are installed quickly, economically.

Daylighting Efficiency—White translucent domes transmit and diffuse 60%-75% of the daylight. Clear material transmits 92%. Glare is minimized because domes are overhead, recessed in ceiling.

Self-Cleaning—Dome shape keeps snow and dirt from accumulating. Light transmission remains high without maintenance.

Domed PLEXIGLAS skylights are available in a number of sizes and shapes. We will be glad to send you the names of sources of supply.

PLEXIGLAS *is a trade mark, Reg. U.S. Pat. Off. and in other principal countries in the Western Hemisphere.*

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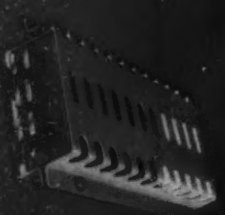
BUSWAY

A New Concept in busway systems that obsoletes all other methods of carrying current.

- Low Voltage Drop in ***PLUG-IN*** AND ***FEEDER*** TYPES.
- High Short Circuit Strength in ***PLUG-IN*** AND ***FEEDER*** TYPES.
- ***ONE FLEXIBLE FITTING*** makes elbows, offsets —simplifies engineering and eliminates costly delays.
- ***COMPLETE SAFETY*** because live bus bars at plug outlets and live connections in plugs are eliminated.

And All at Lower Cost!

Roller-Smith
CORPORATION
BETHLEHEM, PENNSYLVANIA



ECONOMY

New clip-on hanger and lighter weight busway mean less installation time. Feeder system often costs less than conduit and wire, yet is 100% reusable.

FLEXIBILITY

Flexible connector eliminates all special fittings so that a minimum number of components meet all job requirements. Plug-in and feeder sections interchangeable.

SAFETY

Interlocked covers slide over plug outlets and cannot be opened or removed by people. Interlocked cover exposes live contacts to bus bars only when plug is in place. Another safety feature.

FIRST IT WASHES...THEN IT DRIES

It's a Complete Home Laundry in a Single Space-Saving Unit!

New Westinghouse Wash 'n Dry Laundromat®

The house-hunting family spots it as quickly as you can say it: "Convenience!" It's here, in a single space-saving unit that both washes *and* dries a full 8-lb. family-size load of clothes in one continuous operation.

Now you can add the "luxury look" to kitchen or utility areas of even smallest homes. Only 32" wide, the Wash 'n Dry Laundromat can be used as a washer, as a dryer, or both. Features include the "New Way to Wash," Weigh-to-Save Door, and Water Saver. No bolting down or venting is needed.

Besides gleaming White, this model is available in distinctive new Westinghouse Holiday Colors—Sunshine Yellow and Cascade Aqua to dramatize every décor.

For complete details, contact your distributor, or write direct.

✦ ✦ ✦

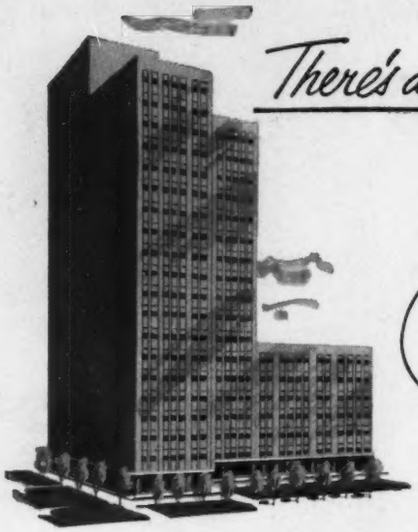
WESTINGHOUSE ELECTRIC CORPORATION
Electric Appliance Division • Mansfield, Ohio

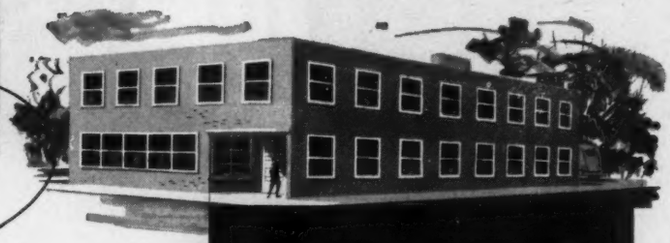
Betty Furness says: "Whether in solid or two-tone combination, Westinghouse Appliances in the exciting new Holiday Colors will thrill any woman!"

Makers of Refrigerators • Home Freezers • Ranges • Laundromats • Clothes Dryers • Dishwashers • Water Heaters • Vent Fans • and Food Waste Disposers

YOU CAN BE SURE... IF IT'S Westinghouse

There's a RUSCO window for every plan you make





Complete finish-painted ready-to-install units

RUSCO

HOT-DIPPED GALVANIZED

STEEL PRIME WINDOWS

From modest dwellings to big, rambling Ranch homes—for small buildings or multi-story skyscrapers—there's a Rusco hot-dipped, tubular, galvanized steel Prime Window made to fit *your plans!*

These highly functional ready-to-install Prime Windows have many exclusive advantages. Much costly, time-consuming, on-the-job work is eliminated when you specify Rusco! No glazing—no painting—no fitting or later adjusting—no sash cords, weights or balances. This *complete* window is a finished unit the minute it goes into a building!

Select from a full line of Horizontal Slides—Vertical Slides and Fulvue Vertical Slide types—in all standard sizes and shapes.

THE NEW RUSCO SCREEN AND STORM DOOR COMBINATION
(Model No. 55 RSD)

Made of hot-dipped galvanized steel—this new low-cost door has a full-length Fiberglas screen, removable insulating sash optional, attached hardware, patented Thermolok closure strips, vinyl sill sweep, kick-plate and adjustable closer. Attractive, protective grille and house number or initial available at extra cost.

"Hello there! I'm Sally Steele from the Rusco Service Department. We have your free copies of literature, describing these fine Rusco products, ready to mail as soon as you write to me at the address below."

Always one step ahead of the weather with RUSCO

THE F. C. RUSSELL COMPANY

DEPT. 7-AR45, CLEVELAND 1, OHIO • IN CANADA: TORONTO 13, ONT.

World's largest manufacturer of windows, doors and home comfortizing products.

BY INVITATION PURVEYOR WARRANT OF QUALITY

LOOK WHAT RUSCO PRIME WINDOWS OFFER YOU!

Made of Hot-Dipped Galvanized Steel for strength, long life and minimum maintenance. Zinc-treated, Bonderized and finished with baked outdoor-type enamel for protection against weathering.

Available with Insulating Sash—and Fiberglas screen, as an integral part of the unit. Insulating sash gives Rusco's exclusive MagicPanel® year 'round, rainproof, draft-free ventilation.

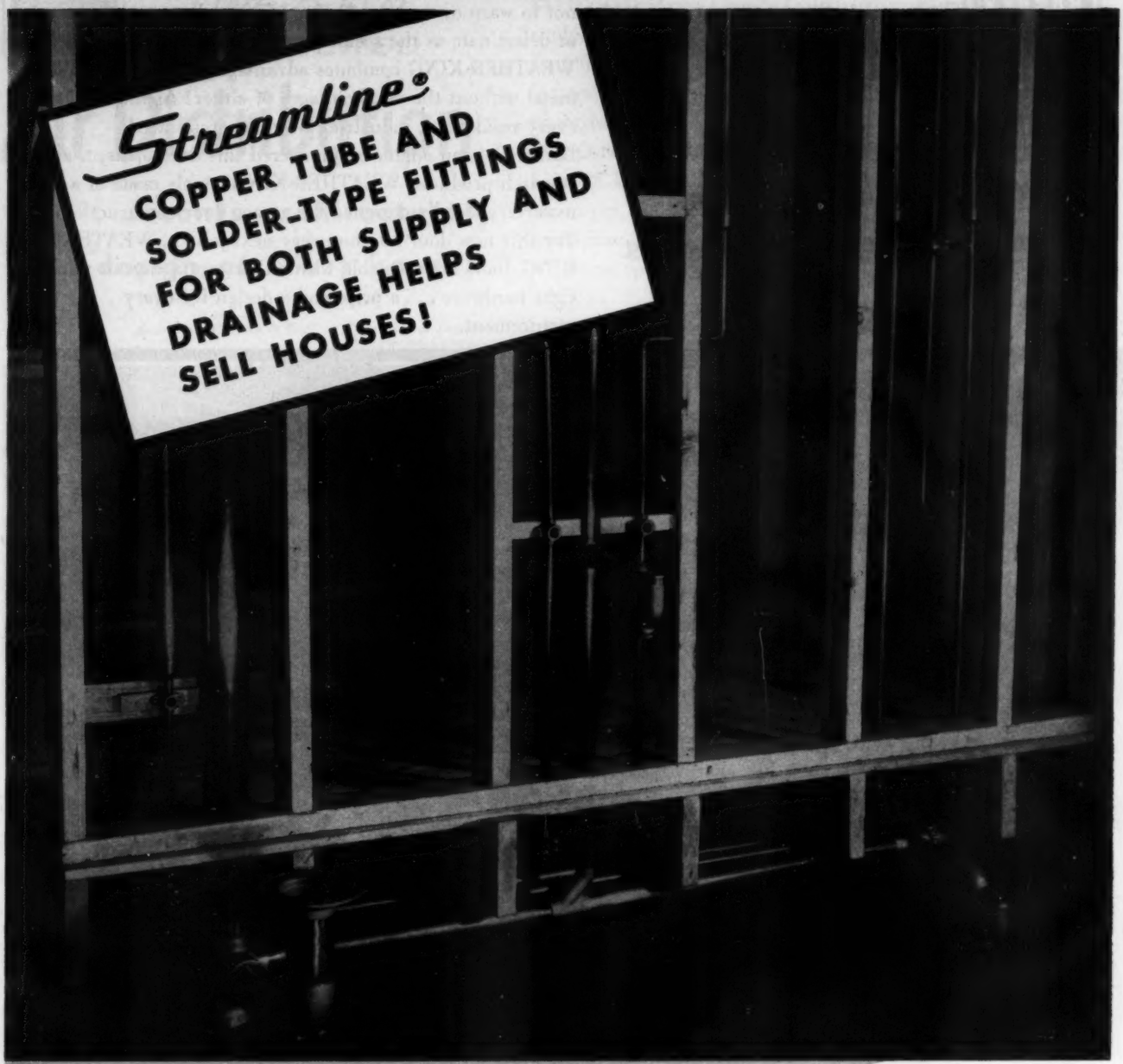
Built-In Waterproofed Felt Weatherstripping. Makes Rusco Windows completely weathertight, eliminates metal-to-metal contact, noise and rattling.

Positive Automatic Locking of vertical slide units in all open and closed positions. Springbolt action.

Smooth, Effortless Operation. Rusco sash sections slide in a felt cushion—easily, quietly, without effort.

Sliding Glass Panels removable from inside for easy cleaning. Sliding glass inserts slip out in an instant for safe, convenient, inside cleaning.

GIVE THE HOMEOWNER ALL COPPER FOR LESS



Here are a few of the many reasons why:

- **Ease of installation makes copper less expensive than competitive materials.**
- **They can't rust, won't leak, are clog-resistant, and give a lifetime of trouble-free service.**
- **Compact fitting design allows 3" stack to be installed in a standard 2" x 4" partition.**
- **Neat appearance and space-saving features of Streamline copper tube and solder-type fittings add sales appeal.**

Write today for latest Streamline Catalog, S-354, showing full range of styles and sizes, including roughing-in dimensions.

STREAMLINE DRAINAGE FITTINGS
MEET A.S.A. STANDARD B16.23

136-A

LOOK FOR THE NAME ON STREAMLINE PRODUCTS

MUELLER BRASS CO. **PORT HURON 5, MICHIGAN**

BARBER COLMAN

Barcol® OVERdoors

now with extra-stong "Weather-King" door panels guaranteed against weathering

Now for the first time you can offer a garage door with panels guaranteed to withstand moisture and humidity, guaranteed not to warp or weathercheck, guaranteed not to split, crack or delaminate as the result of natural conditions. WEATHER-KING combines advantages of both plywood and metal without the disadvantages of either! Applicable to every residential, industrial, or commercial need. Barber-Colman engineers pioneered this development, and research produced WEATHER-KING panels made of a new material specially designed for garage door construction. Try this new door on your very next job . . . WEATHER-KING doors are available with either cam action or wedge-tight hardware . . . a price and a design for every requirement.

WAREHOUSE
WEATHER-KING PANELS
Lifetime Guarantee
The WEATHER-KING panels of this Barcol OVERdoor were developed by Masonite Corporation specifically to resist deterioration due to weathering conditions. WEATHER-KING panels give you the best in quality, beauty, strength, and service. WEATHER-KING panels are guaranteed not to split, splinter, delaminate, or crack due to any natural conditions of weathering or exposure. If WEATHER-KING panels fail in this way, notify your Barcol OVERdoor distributor, giving conditions of failure. After verification of failure Barber-Colman will furnish a new panel or the entire section at its expense.
BARBER-COLMAN COMPANY
ROCKFORD, ILLINOIS

Weather is wood's traditional enemy, but WEATHER-KING laughs at sun, wind, moisture. LIFETIME GUARANTEE backs up every claim made on this page.

Only Barber-Colman OVERdoors give you all three—

1. **CAM CLOSING** releases immediately for easy opening; exclusive pressure closing seals garage weathertight.
2. **WEATHER-KING SECTIONS**—panels guaranteed for life not to weathercheck, split, crack, or delaminate.
3. **INDIVIDUALIZED DESIGN** — New *Doornaments* make standard doors into custom designs at only fractional extra cost. For free design service, call your Barber-Colman distributor (under "Doors" in phone book), or write:

Barber-Colman Company

Dept. P54, Rockford, Illinois

WARDROBEdoors • Automatic Controls • Industrial Instruments
Air Distribution Products • Aircraft Controls • Small Motors • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

BARBER COLMAN

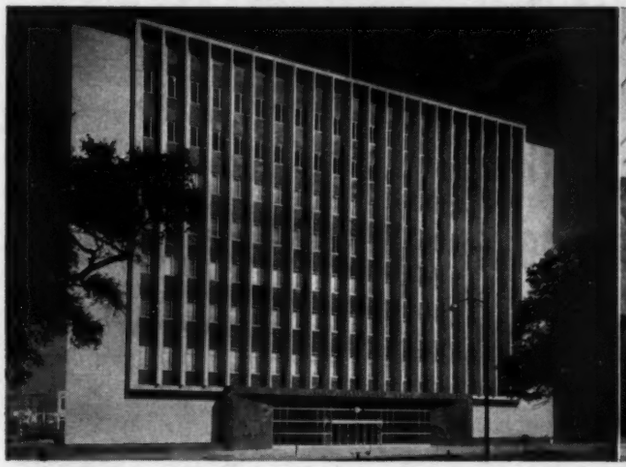
LINE-O-FLO ENGINEERED

Air Distribution

. . . accents architectural design of court house!

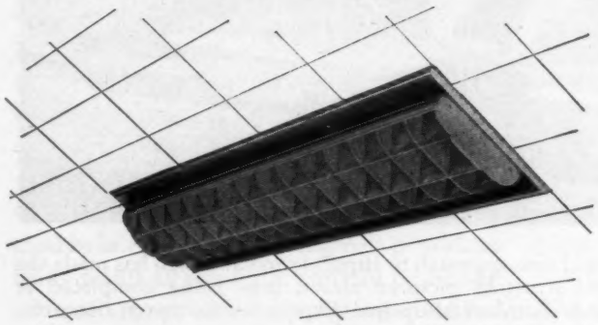
County fathers in Houston, Texas, took no chances when they were approving a $1,500,000 conditioned air system for the new $11,000,000 Harris County Court House. Barber-Colman equipment was specified throughout this modern structure, assuring finest possible end results from the sizable investment in conditioning apparatus. Air is distributed efficiently, quietly, unobtrusively, for heating, cooling, and ventilating from the Line-O-Flo and Venturi-Flo Ceiling Diffusers, and the Uni-Flo Sidewall Diffusers and Return Grilles. Not only are the results above par, but the air distribution units are easier to install, harmonize beautifully with the contemporary design, and last a lifetime with a minimum of service.

Architects: FINGER & RUSTAY. *Mechanical Engineer:* I. A. NAMAN. *General Contractor:* MANHATTAN CONSTRUCTION CO. *Mechanical Contractor:* CHARLES G. HEYNE AND COMPANY.

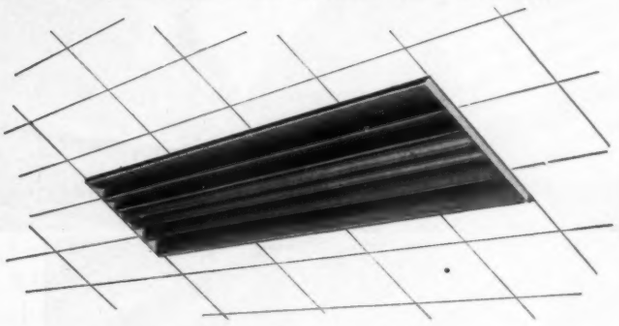


Eight-story court house, except for the jail area, is completely air conditioned. Four primary systems, located on the roof, heat, cool, ventilate, and control humidity as outside conditions require.

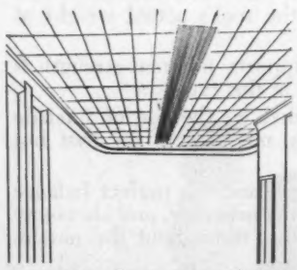
Line-O-Flo Ceiling Diffusers in lobby and court room areas quickly equalize temperature differential between supply and room air, preventing stratification and eliminating drafts. Combine readily with light fixtures.



Model LL Line-O-Flo is designed to receive a Day-Brite light unit, which is isolated from the air stream. Flange arrangements permit individual or continuous mounting.



Model LS Line-O-Flo, as used in Harris County Court House, provides positive control of air volume, plus uniform distribution over entire length. Individual or continuous mounting.



BLAZING THE TRAIL TO BETTER AIR DISTRIBUTION

***First* with widely accepted line-type air distribution**

Desire of architects and engineers for continuity of design in modern architecture led Barber-Colman Company into development of Line-O-Flo air distribution equipment. These were the first successful line-type outlets on the market. Scientifically designed, rolled steel members provide rigidity. Two models are available with flange arrangements for individual, or continuous strip installation. One Line-O-Flo model is designed to receive a fluorescent light unit. Both models are dimensionally co-ordinated for use with acoustical ceilings and other building products. Either may be used for supply (with balancing dampers) or return units. Reliable performance data is available on Line-O-Flo and all other Uni-Flo products. For literature, prices, and expert engineering help, phone our nearby Field Office, or write us.

Barber-Colman Company

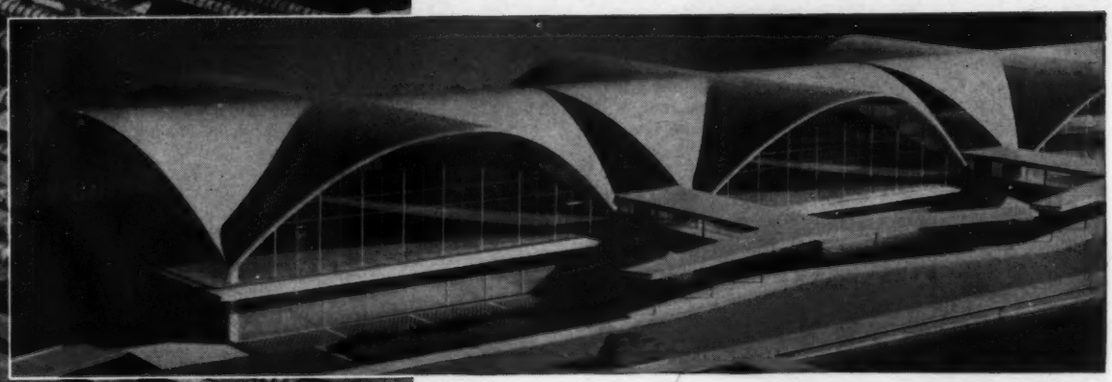
Dept. P, 1104 Rock Street, ROCKFORD, ILLINOIS, U. S. A.

Field Offices in Principal Cities

Air Distribution Products • Automatic Controls • Industrial Instruments
Aircraft Controls • Small Motors • Overdoors and Operators • Molded Products • Metal Cutting Tools • Machine Tools • Textile Machinery

Laclede Reinforcing Bars

. . . the "backbone" that gives strength and support to St. Louis' amazing new Airport Terminal Building



Architects:
Hellmuth, Yamasaki & Leinweber, St. Louis
Structural Engineer:
William C. E. Becker, St. Louis
Engineering Consultant:
Roberts & Schaefer Co., Chicago
Contractor:
L & R Construction Co., St. Louis

A bold new approach to airport terminal design has made the unusual structure pictured above, now being completed at St. Louis' Lambert Municipal Airport, a sensation in the architectural and construction world.

The obvious focus of attention is the massive but graceful roof, formed of huge intersecting cylindrical shells of concrete, 120 feet wide but only 4½ inches thick. The illusion is one of lightness and airiness, belying the roof's actual weight of 3,000 tons.

Because there are no internal supports, inherent strength is of special importance in a building of this type.

Much of that strength is provided by the use of Laclede Multi-Rib Round Reinforcing Bars, not only in the roof but throughout the entire terminal.

These Laclede-designed bars represent the perfect balance between high strength and maximum anchorage, and are enjoying ever-widening use by contractors throughout the nation.

LACLEDE

LACLEDE STEEL COMPANY

SAINT LOUIS, MISSOURI ◆ Producers of Steel for Industry and Construction

You save a mighty pretty penny—

Sure do, when you have an Ozalid machine.

You lose no time waiting for prints. Make them as you need them. Place a drawing on translucent cloth on Ozalid sensitized paper. Feed into any Ozalid machine—and you get a finished, dry print, ready for use, in less than a minute. No fussing with variable solutions, no messy cleaning up afterwards.

You get the best prints—clear, accurate, legible, hold their size and color. And the cost per print is peanuts; a big white 24″x 36″ is only 8¢. The saving mounts up when you need tens or hundreds of prints for subcontractors and suppliers.

You save your originals. Expose them once to make duplicates, and you can put them in mothballs. The duplicate originals provide as many prints as you want, and can be revised without change to your originals. Detailed duplicates make the special prints for wiring, plumbing, air conditioning, insulation, and special installations—with considerable saving in drafting and design time.

THE SAME Ozalid machine makes copies of specifications, materials lists, work orders, purchase orders, instruction sheets, materials tags, shipping directions, progress reports, miscellaneous forms—anything written, typed, printed, drawn, on a translucent original.

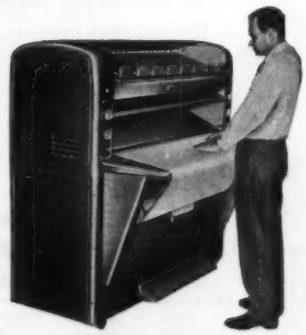
Actually, you're losing money every day you don't have an Ozalid machine. Ask the nearest Ozalid distributor (*see phone book*) to show you the model that fits your needs. Or write 300 Ozaway, Johnson City, N. Y. In Canada, Hughes Owens Co. Ltd., Montreal.

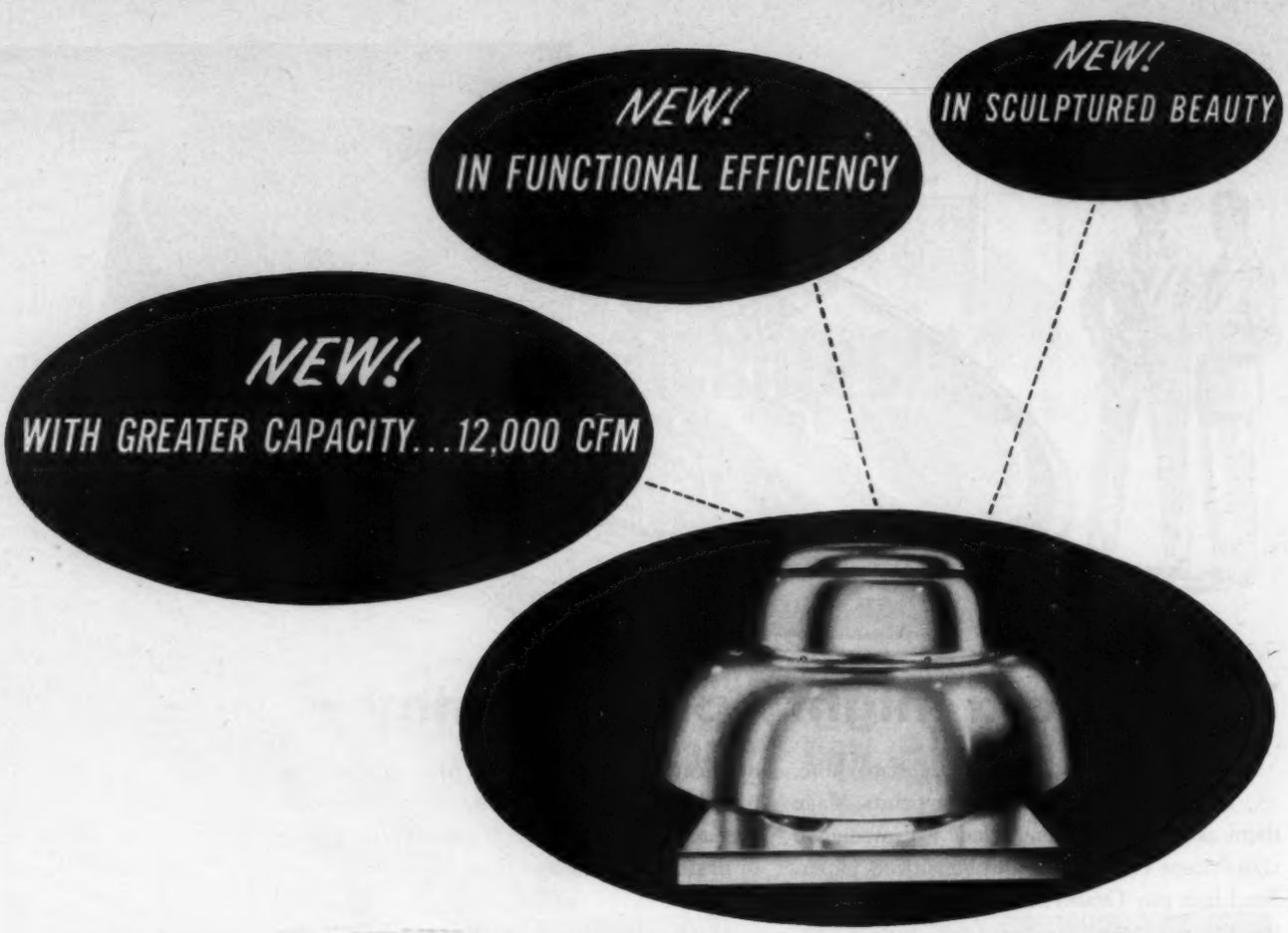
OZALID—A Division of General Aniline & Film Corporation...*From Research to Reality*

OZALID

OZAMATIC (*left*) *is a table model, moderately priced, handles sheets as wide as 16″, and can make up to 1,000 prints an hour.*

PRINTMASTER 800 (*right*) *is the most efficient and versatile print machine ever made for the price...prints, develops in one continuous operation...handles sheet or roll stock up to 42″ wide, prints as fast as 42′ a minute.*





The NEW Jenn-Air BELT-DRIVE Centrifugal Roof Exhauster

Again leading the way, Jenn-Air provides a new innovation in spun all-aluminum belt-driven exhausters. With capacities up to 12,000 CFM, Jenn-Air becomes the first to offer these higher capacity belt driven exhausters with the same attractive low contour Jenn-Air designing. With Jenn-Air Belt-Drive Roof Exhausters, it is no longer necessary to use the unsightly industrial type ventilators to provide for those higher capacity requirements. *Certified ratings in accordance with NAFM and ASH&VE code tests by independent laboratory.*

Look at these 7 ways Jenn-Air Exhausters excel:

1. Easy Installation—constructed from heaviest gauges of corrosion resistant aluminum, yet light enough for easy assembly on the roof;
2. Lower Fire Hazard—spark-proof blade—motor mounted out of air stream away from inflammable air contaminations;
3. Beauty—design that blends with today's modernistic buildings;
4. Ageless Aluminum Rustproof Construction—will outlast any structure—no painting required;
5. Quiet! full ball-bearing grease packed motor means dependable trouble-free operation;
6. Low Contour—hugs the roof for pleasing appearance . . . eliminating unsightly intrusion with roof line;
7. Package Unit—nothing else to buy . . . ready to install.

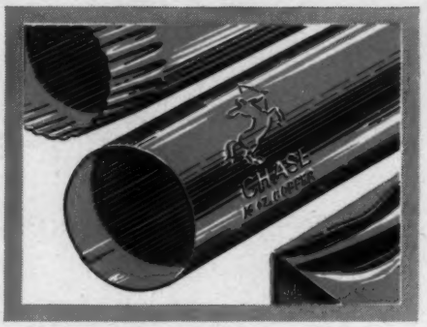
Jenn-Air also offers wall exhausters which can be installed close to the area needing ventilation, thus reducing duct work. Only Jenn-Air offers dual ventilation . . . both roof and wall exhausters.

JENN-AIR PRODUCTS COMPANY, INC.
Architects & Builders Building
Indianapolis 4, Indiana

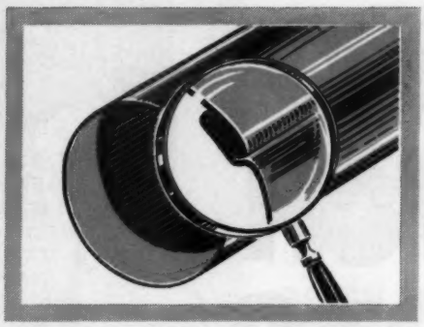
Chase®

gives you 7 reasons why copper means a better home!

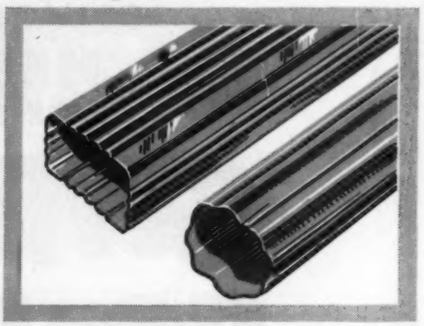
It won't rust and resists corrosion— **Copper's** resistance to the elements is traditional—even in areas where atmospheric conditions destroy other metals. Its performance is proved over centuries of experience.



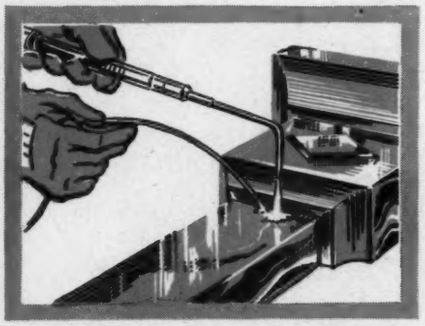
It's full weight— Look for the die-stamped Chase Trade Mark and Weight Stamp—your assurance that Chase **Copper** Roofing Products have stability and permanence.



Seams are adequate— Chase **Copper** Leaders are formed from full-width strips, to assure strong, expansion-proof seams.

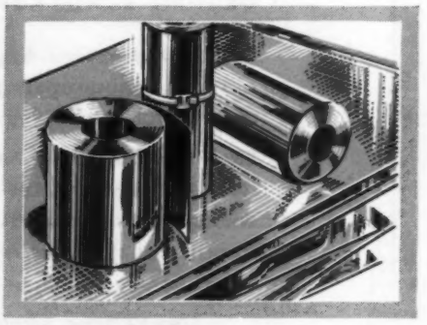


Corrugations are deep and generous— Chase **Copper** Downspouts have full-depth corrugations, ample for temperature ranges in *any* climate.



It can be soldered . . . with ease and economy— Long-lasting, water-tight joints are assured when standard soldering techniques are applied to Chase **Copper** Roofing Products.

It's architecturally harmonious— Modern or traditional design both benefit from **Copper's** rich appearance—a metal protected and beautified by nature itself.



It's economical— The ratio of *first-cost* to *years of service* is at a bare minimum, when **Copper** is used. And, the relationship of copper to overall building costs is as reasonable as it ever was in the past.

Chase®

BRASS & COPPER CO.

WATERBURY 20, CONNECTICUT • SUBSIDIARY OF KENNECOTT COPPER CORPORATION

For maximum life and performance, specify Chase full weight copper leaders, gutters and roofing accessories.

The Nation's Headquarters for Brass & Copper

Albany†	Chicago	Detroit	Los Angeles	New York	St. Louis
Atlanta	Cincinnati	Grand Rapids†	Milwaukee	Philadelphia	San Francisco
Baltimore	Cleveland	Houston	Minneapolis	Pittsburgh	Seattle
Boston	Dallas	Indianapolis	Newark	Providence	Waterbury
Charlotte†	Denver	Kansas City, Mo.	New Orleans	Rochester†	(†sales office only)

ALL THE FEATURES *plus*....

SQUARE D's
NEW
POWER-STYLE

SWITCH BOARDS

DESIGN LEADERSHIP FEATURES

Distinctive Styling provides an attractive, modern appearance matching the control center design.

Easier Installation because removable front and back plates expose generous wiring parts. Isolated horizontal wiring trough has drop-off openings, assuring safer, neater wiring.

Flexibility. Complete sections or branch units can be added or changed to meet specific job requirements.

Easier Inspection and Maintenance. Front, side and back plates are removable, thus providing easy and immediate access to specific areas.

SEPARATELY OR AS A TEAM....

Write for Bulletin SD-18. Address Square D Company, 6060 Rivard Street, Detroit 11, Michigan.

SQUARE D COMPANY

MATCHED ENCLOSURES!

SQUARE D's
NEW
PLUG-IN
CONTROL CENTERS

DESIGN LEADERSHIP FEATURES

Increased Safety because bus bars are fully enclosed, rigidly supported and have ample cross section...circuits isolated by individually enclosed plug-in units...disconnect handle designed for maximum operator protection.

Flexibility. Individual plug-in units or complete sections can easily be added, removed or exchanged. Push-buttons, pilot lights, and selector switches can readily be added to unit doors.

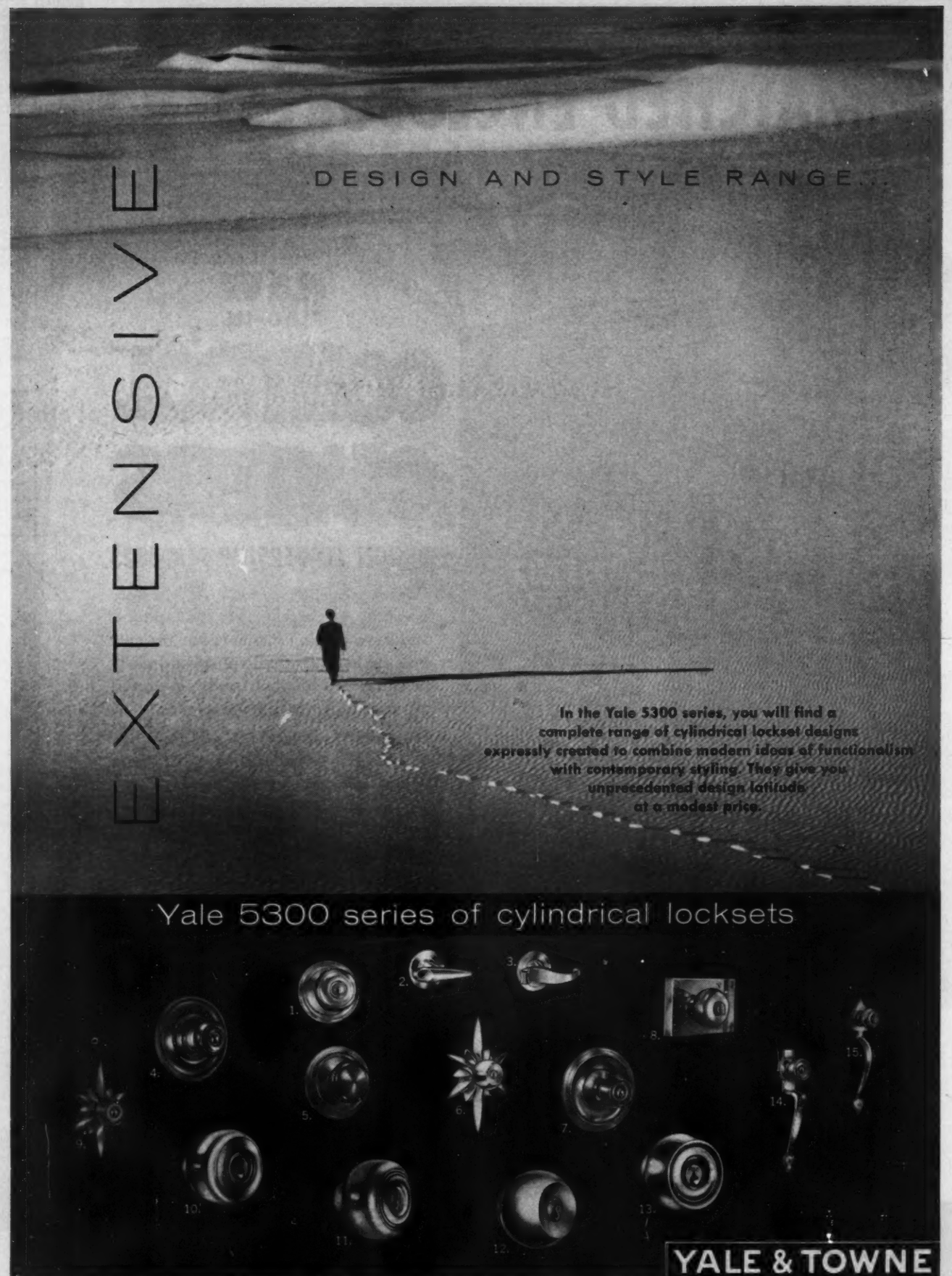
Installation Economy. All wiring channels are large and accessible from front without removing units...no "wire fishing."

Space economy, too. Up to six combination starters fit in a 20"x20"x 90" section. Plug-in unit heights are designed in space-saving increments of 3 inches.

....THEY DO THE JOB BETTER!

Write for Bulletin 244. Address Square D Company, 4041 N. Richards St., Milwaukee 12, Wisconsin.

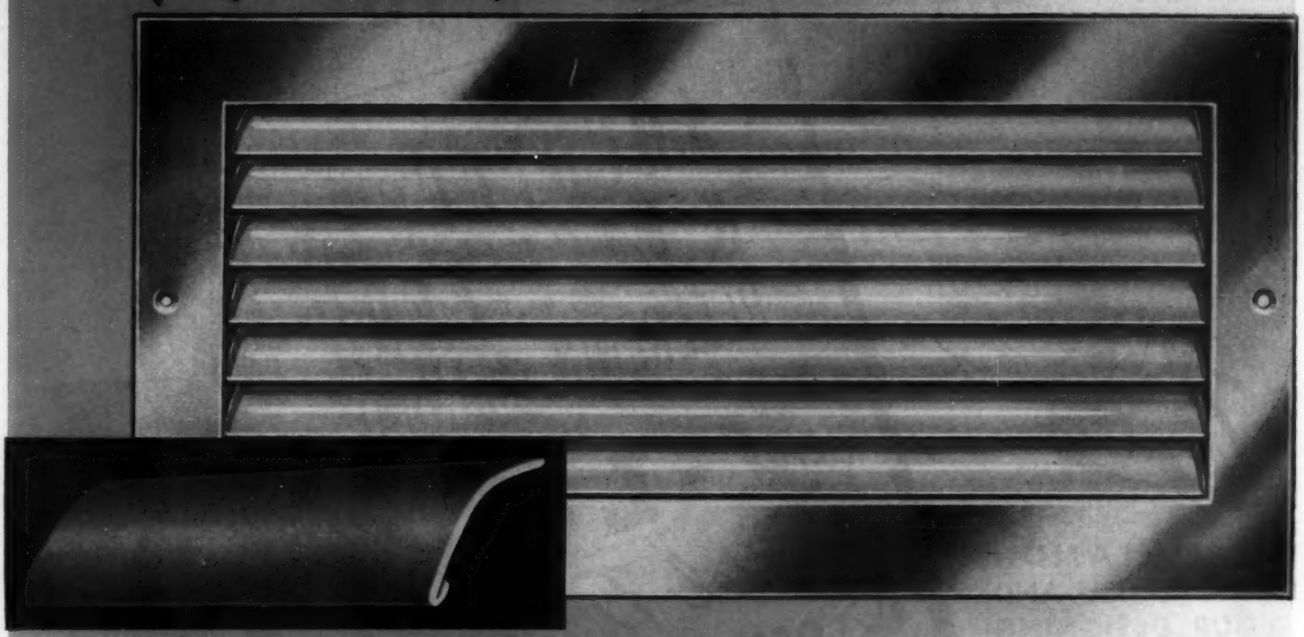
ASK YOUR ELECTRICAL DISTRIBUTOR FOR SQUARE D PRODUCTS


EXTENSIVE
DESIGN AND STYLE RANGE...
In the Yale 5300 series, you will find a complete range of cylindrical lockset designs expressly created to combine modern ideas of functionalism with contemporary styling. They give you unprecedented design latitude at a modest price.
Yale 5300 series of cylindrical locksets
YALE & TOWNE

Eight new escutcheons that combine with four new knobs... two new entrance handles... two new lever handles: 1. Troy with Norfolk escutcheon. 2. Deauville lever handle. 3. Guilford lever handle. 4. Troy with Madison escutcheon. 5. Litchfield with Savoy escutcheon. 6. Classic with Dallas escutcheon. 7. Nassau with Newport escutcheon. 8. Litchfield with Williamsburg escutcheon. 9. Nassau with Constellation escutcheon. 10. Litchfield knob. 11. Troy knob. 12. Classic knob. 13. Nassau knob. 14. Arlington entrance handle. 15. Westbrook entrance handle. Send for FREE full-color catalog. THE YALE & TOWNE MFG. CO., LOCK & HARDWARE DIV., STAMFORD, CONN. YALE, REG. U. S. PAT. OFF.

NEW IMPROVED

Return Air Grille



CURVED HEMMED FINS GIVE 80% FREE AREA

TITUS

designed by

Large free area means the Titus Return Air Grilles HANDLE MORE AIR PER SQUARE INCH. Makes it possible for a smaller grille to give superior performance . . . at lowest cost . . . and correct performance faults of other parts of an air conditioning or heating system . . . at the same time.

NEW BEAUTY

Matches design of supply grilles Curved outline of fins add beauty . . . at the same time make it easy for maintenance personnel to keep grilles clean.

ONE-PIECE ASSEMBLY . . . FOR ANY SIZE OPENING

This eliminates expensive labor of handling old-fashioned grilles that are made in sections. Cuts costs of fitting, butting and screwing together these sections. Brings labor and grille costs to a minimum.

MORE STRENGTH PER SQUARE INCH

The curved hemmed fin design adds rigidity and durability to resist lower wall abuse. There is no see-thru due to the special positioning of the fins.

WRITE FOR FREE CATALOG TODAY

TITUS MANUFACTURING CORP.
WATERLOO, IOWA

Gentlemen: I wish to improve the heating and air conditioning performance of my forced air systems . . . at the same time lower my grille costs. Please send me the new illustrated brochure on Titus Return Air Grilles.

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YOU HAVE A BUILDING TO DESIGN?

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STANDARDIZED STEEL BUILDING PRODUCTS

MACOMBER INCORPORATED

CANTON 1, OHIO

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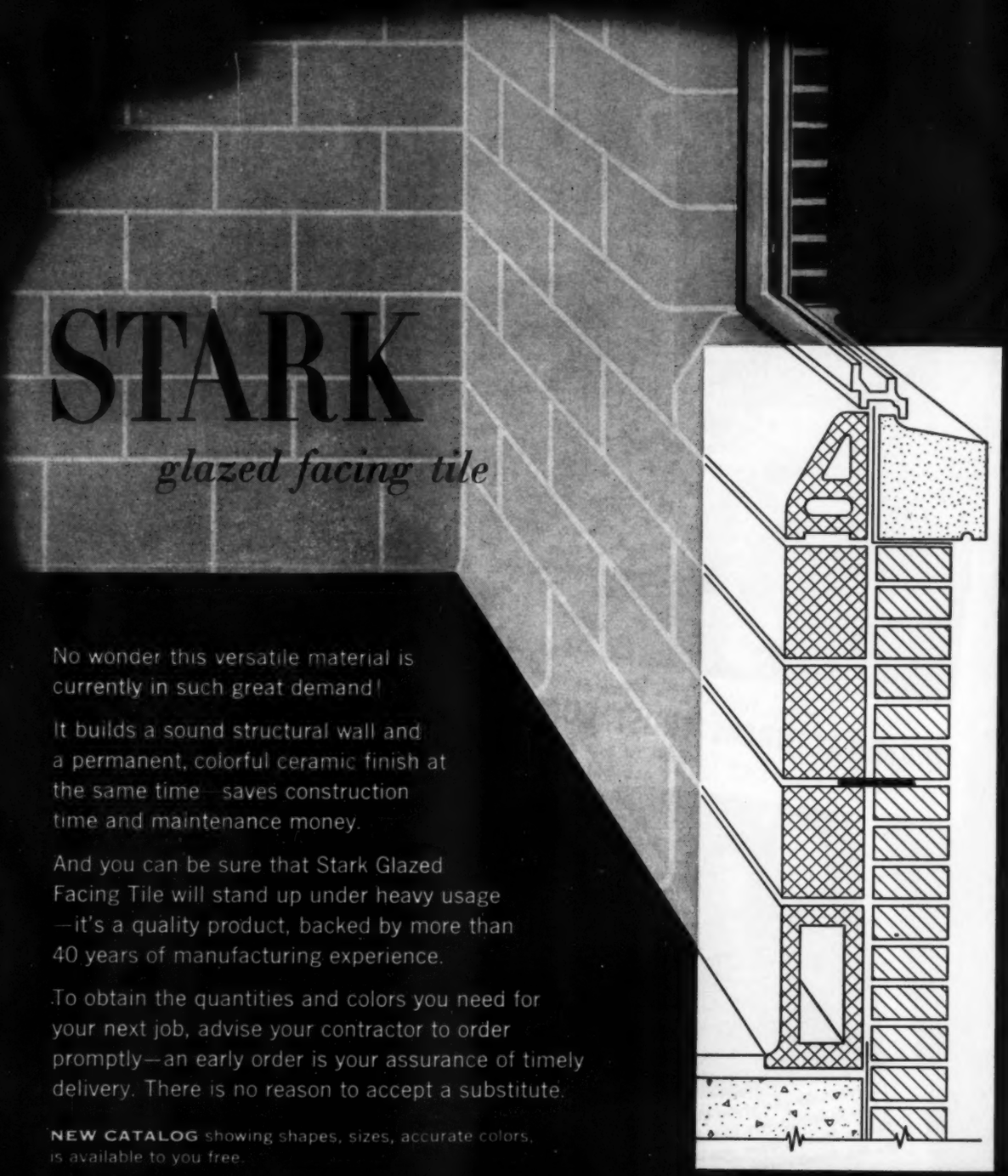
NAILABLE STEEL JOISTS • LONGSPANS • BOWSTRING ROOF TRUSSES • METAL DECK • V-LOK STEEL FRAMING • STRUCTURALS

economical "wall-and-finish-in-one"



STARK

glazed facing tile

No wonder this versatile material is currently in such great demand!

It builds a sound structural wall and a permanent, colorful ceramic finish at the same time—saves construction time and maintenance money.

And you can be sure that Stark Glazed Facing Tile will stand up under heavy usage—it's a quality product, backed by more than 40 years of manufacturing experience.

To obtain the quantities and colors you need for your next job, advise your contractor to order promptly—an early order is your assurance of timely delivery. There is no reason to accept a substitute.

NEW CATALOG showing shapes, sizes, accurate colors, is available to you free.

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Canton 1, Ohio

14305 Livernois Avenue, Detroit 4, Michigan • 15 East 26th Street, New York 10, N. Y.

FTI STRUCTURAL FACING TILE INSTITUTE

ANOTHER CASE OF

COPPER

WHERE IT COUNTS

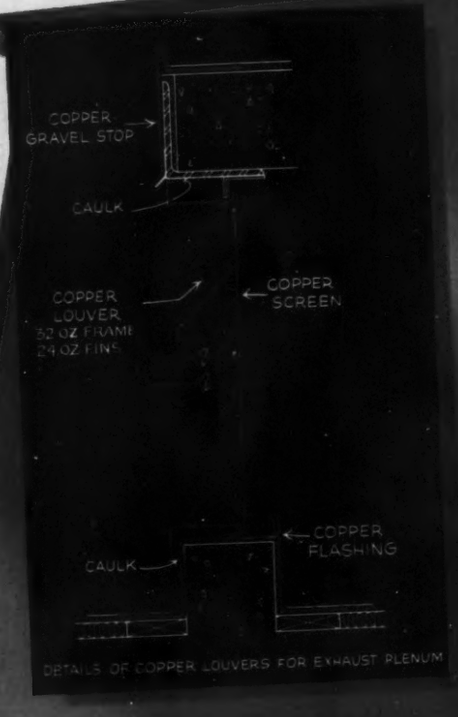
The new Fifth Avenue office of

MANUFACTURERS TRUST COMPANY

New York, N. Y.

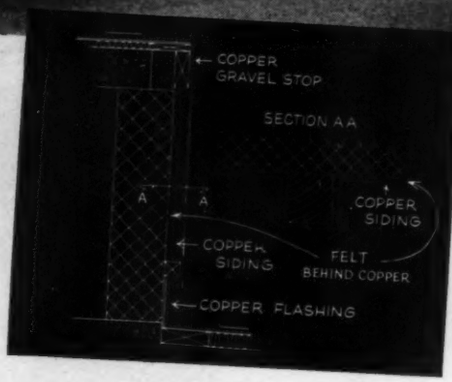
Architects: SKIDMORE, OWINGS & MERRILL, N. Y.
Gen. Cont.: GEORGE A. FULLER COMPANY, NEW YORK
Sheet Metal Cont.: JACOB RINGLE & SON, Jersey City, N. J.

LOUVERS for one of the air conditioning outlets atop the roof of the Manufacturers Trust Company being finished off. 32 oz. Revere Sheet Copper was used for the frame and 24 oz. for the fins. Detail shown at right.



DETAILS OF COPPER LOUVERS FOR EXHAUST PLENUM

MONITOR OF REVERE LEADTEX #15 COPPER of batten seam construction which houses the air conditioning ducts in the Fifth Avenue office of Manufacturers Trust Company. Of enduring, "ageless" copper, the centuries-tested metal, it will not rust, rot or deteriorate, seals against weather damage. One of Revere's Technical Advisors worked with the architects in the design of this monitor. Detail at right.



● In describing this drastic departure in banking institution design, Horace C. Flanigan, President of Manufacturers Trust Company, said, "The architecture of this bank, departing from the classic design of the past, uses to advantage the latest in form, construction and materials."

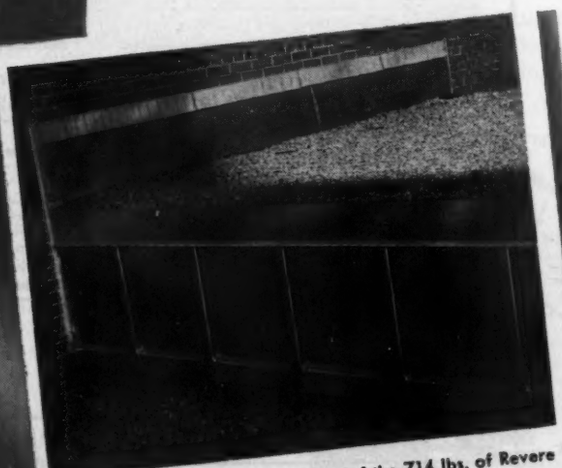
Among those materials is copper, not only man's oldest metal but in modern designs, such as this, man's newest metal, too. From its use on the 6-ton decorative screen of copper, nickel and brass to the flashing and monitor on the roof, the "ageless" metal copper stands ready to serve through the years without rotting, rusting or deteriorating.

In order to blend more perfectly with the off-white glazed brick used on the exterior of this great building, the architects specified Revere Leadtex #15 Sheet Copper. Revere Plain Sheet Copper was also used where color was unimportant. Altogether some 20,000 lbs. of copper were used.

One of the advantages architects will find in working with an organization such as Revere is a wealth of experience that can be a great help to them in many ways. In this particular instance one of Revere's Technical Advisors had the good fortune to be able to work closely with the architects in the design of the monitor which you see in the photograph at the top of this page. The architects and contractors were well pleased with the design which resulted from the Revere man's suggestions.

Why don't you take advantage of Revere's more than 153 years of experience in copper and its alloys? Also, we believe you'll find it worth your while to find out about the many money-saving advantages of Revere Keystone Thru-Wall Flashing.*

*Patented



AT TOP OF PHOTO YOU SEE part of the 714 lbs. of Revere Keystone Thru-Wall, 3-Way Flashing used where monitor joins main wall of building. Weather is kept in its place (outside) with enduring Revere Copper Flashing on the job.

REVERE

COPPER AND BRASS INCORPORATED

Founded by Paul Revere in 1801

230 Park Avenue, New York 17, N. Y.

• • •

Mills: Baltimore, Md.; Chicago and Clinton, Ill.; Detroit, Mich.; Los Angeles and Riverside, Calif.; New Bedford, Mass.; Rome, N. Y.—Sales Offices in Principal Cities, Distributors Everywhere.

This view in the Board of Directors Room of the recently completed general offices of the Brown Shoe Company, St. Louis, Mo., shows how Permacoustic provides a ceiling that is beautiful and acoustically functional.

A beautiful Solution

TO NOISE-CONTROL PROBLEMS

Johns-Manville

Permacoustic

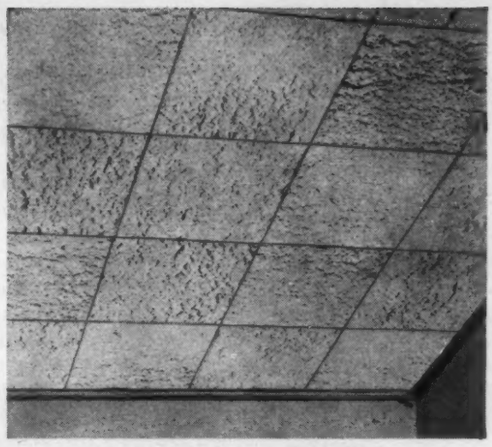
decorative acoustical tile

J-M Permacoustic® is an acoustical ceiling tile that combines maximum acoustical efficiency with unusual architectural beauty and complete fire safety.

Permacoustic is available with either a textured or fissured surface. These random-textured finishes increase its high sound-absorbing qualities, and provide design and decorative interest.

Made of baked rock wool fibres, Permacoustic is fireproof—meets all building code fire-safety requirements. It is easy to install on existing ceilings or slabs, or by suspension using a spline system of erection.

Send for your free copy of the new brochure about Permacoustic tile. Write Johns-Manville, Box 158, New York 16, New York. In Canada, write 565 Lakeshore Road East, Port Credit, Ontario.



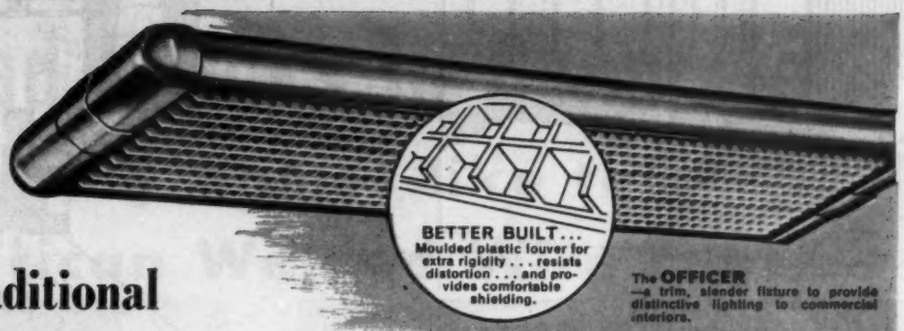
INFORMATIONAL DATA ON PERMACOUSTIC

Sizes 12" x 12" 12" x 24"	Thickness ¾"*	Color: white
	ACOUSTICAL EFFICIENCY.	
	Test No. A51-98	Test No. A51-99
cycles per second	cemented to plaster board (mounting No. 1)	mechanically mounted on special metal supports (mounting No. 7)
125	.04	.56
250	.21	.53
500	.75	.60
1000	.88	.73
2000	.85	.88
4000	.78	.88
noise reduction coefficient	.65	.70
weight per sq. ft.	1.3	1.3

*Also available in ⅞" thickness

JOHNS-MANVILLE JM PRODUCTS **Johns-Manville**

40 YEARS OF LEADERSHIP IN THE MANUFACTURE OF ACOUSTICAL MATERIALS



The **OFFICER**
—a trim, slender fixture to provide distinctive lighting to commercial interiors.

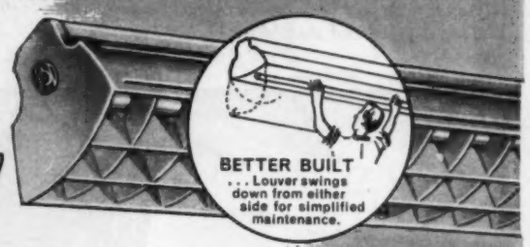
for Benjamin's traditional

"Better Built Quality"

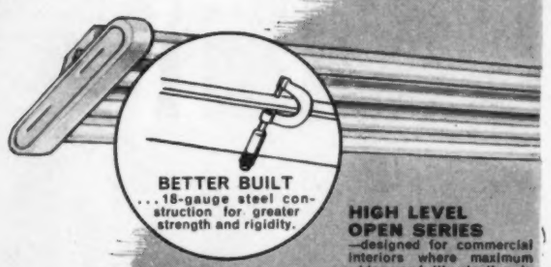
specify

Leader Line

Commercial Lighting Units



The **SCHOOLMASTER**
—an all-steel unit which provides upward light for comfort lighting, ideal for close seeing.

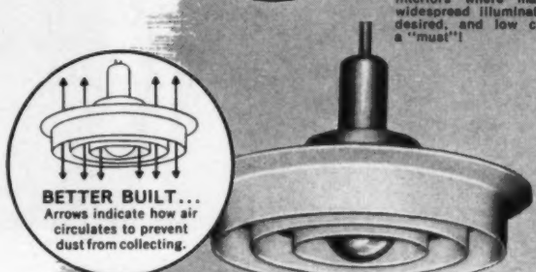


HIGH LEVEL OPEN SERIES
—designed for commercial interiors where maximum widespread illumination is desired, and low cost is a "must"!

It is good business to insist on units with "Better Built" features like those illustrated here. That's because such features help cut operating costs, speed up and simplify maintenance, and insure reduced obsolescence and long-life dependability.

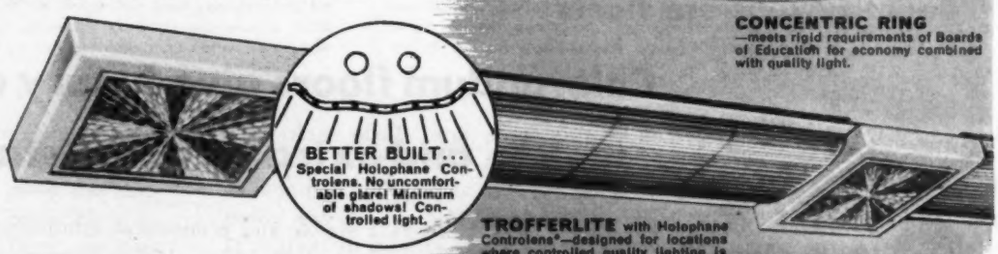
It is good business for the user, because such units give better service and save more money. It is good business for those who recommend and install lighting equipment, because the installation of such units results in greater satisfaction and increased good will.

Shown here are but a few Benjamin Leader Line units, each with just one of its "Better Built" features. Manufacturing "Better Built" lighting equipment is a tradition with Benjamin. That's why you can rely on getting Benjamin Quality in every Leader lighting unit.



CONCENTRIC RING
—meets rigid requirements of Boards of Education for economy combined with quality light.

For a complete showing of the Benjamin Leader Line, send for our FREE CATALOG.



TROFFERLITE with Holophane Controlens*—designed for locations where controlled quality lighting is desired.

*Copr., the Holophane Co.

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TO SERVE YOU BETTER

BENJAMIN
TRADE MARK
Leader Line

Exclusive licensee of the Leader Line in Canada: Robertson Irwin Limited, Hamilton, Ontario

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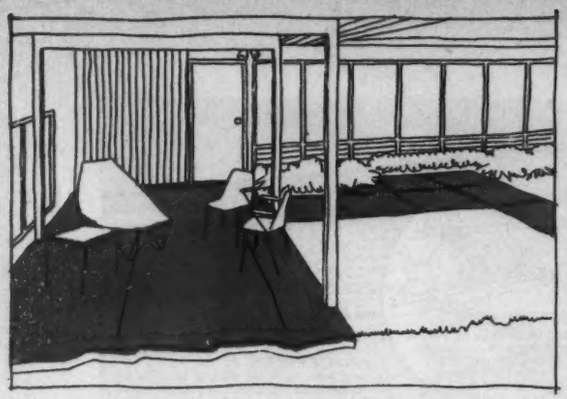
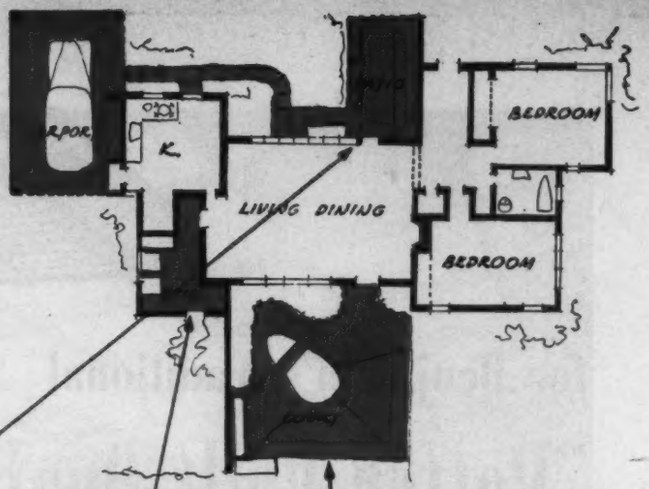
Leader Division of Benjamin Electric Manufacturing Company, Dept. Q-1, Des Plaines, Illinois . . . makers of famous Benjamin and Leader Line lighting equipment and sound signals for Industry, Institutions and Commerce.

B-687RR



Fused color. *Not a paint or coating! Colorundum is troweled into the concrete topping and becomes an integral part of the surface, producing beauty and durability.*



Nat'l Homes Corp. photo *J. Shulman photo* *E. Braun photo*

Beautify concrete floors

Colorundum floors give luxury appearance and extra wear resistance at low cost

Subsidiary of *Chemical Corp.*

A. C. Horn Co., Inc.

Dept. H11-415, Long Island City 1, N. Y.

Please send me complete information on Colorundum.

*Name*_____ *Title*_____

*Firm*_____

*Address*_____

*City*_____ *Zone*____ *State*_____

Here's a simple and economical solution to the problem of exposed or uncarpeted areas of drab, colorless concrete. It's called Colorundum. And the fused-color concrete floor it provides lends a dramatic and practical accent to patios, walkways, and service floors. Colorundum cuts air conditioning costs, too, because its color properties keep sunlit areas substantially cooler than ordinary concrete. Yet its cost is just a fraction of that of tile floors.

Colorundum is far more resistant to traffic than ordinary concrete floors. It is a balanced formulation of nonslip aggregate (next to the diamond in hardness), water-repellent compounds, and durable colors . . . contains no silica, quartz, or sand. It is easy to keep clean, and since it contains no metal, it will not rust or stain.

Colorundum is available in eleven decorator colors.

DIVISIONS OF SUN CHEMICAL CORPORATION

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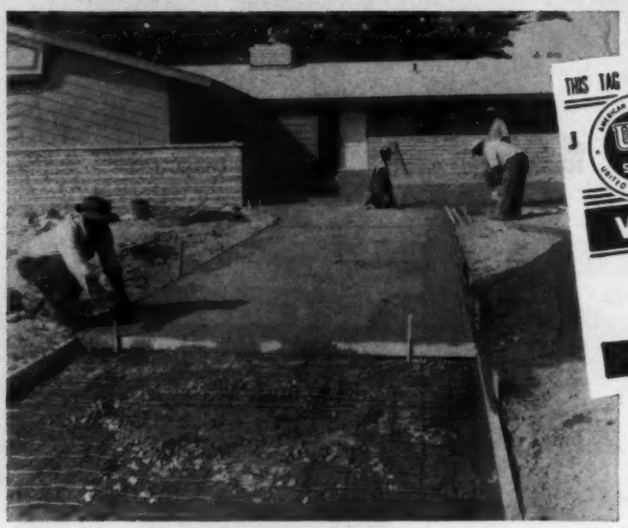
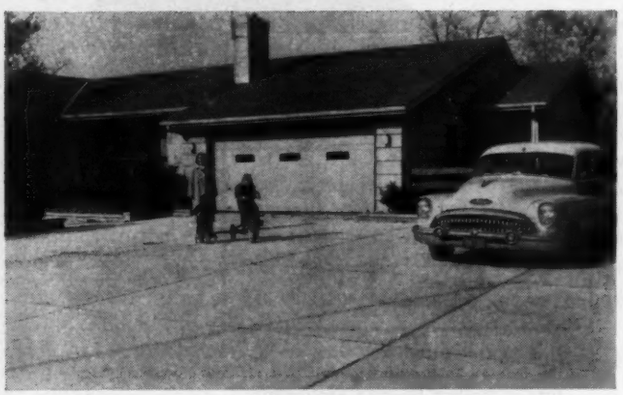
Stop Bad Cracks In Concrete

in quality homes like this

with American Welded Wire Fabric



ARCHITECTS are using reinforced concrete dramatically in modern homes to add color and convenience, and to reduce maintenance in outdoor living, play and service areas. High quality American Welded Wire Fabric keeps these areas smooth and safe, long-lived and maintenance free.



KEEP DRIVEWAYS LOOKING NEW on properties that you develop by reinforcing cement concrete and asphaltic concrete pavements with American Welded Wire Fabric. You can get American Fabric in a style to suit any reinforcing job.

BASEMENT SLABS in good homes also need the extra strength of American Welded Wire Fabric. And make it a point to specify American Fabric for roads and streets in your developments.

• American Welded Wire Fabric is the best and easiest reinforcement you can use for slab concrete. It gives the concrete extra strength and long life . . . prevents hairline cracks from opening into dangerous structural breaks . . . permits the use of large slabs . . . goes into place easily and stays put while concrete is poured. American Wire Fabric not only meets, but actually exceeds the latest ASTM specifications. It is used in quality homes everywhere.

Get in touch with your local distributor for more information.

Your customers will ask

"is it Reinforced"

AMERICAN STEEL & WIRE DIVISION

UNITED STATES STEEL, GENERAL OFFICES: CLEVELAND, OHIO

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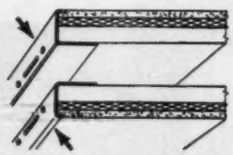
Sterling®

Pocket Door T-Frame

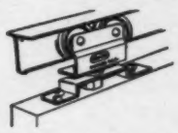
Makes Better Passage Door Installations

Sturdy All Steel Construction

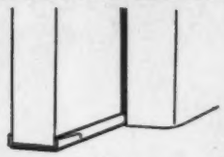
Section Through Steel Header Showing Factory Installed Aluminum Track



Section Through Split Jambs Showing Heavy Gauge Steel



New Aluminum Track and Adjustable Hangers Especially Designed for Pocket Doors



Aluminum Guide Strip Attached to Bottom of Door. Guides Door Into Pocket

Now you can build wall pockets the modern, improved way with Sterling Pocket Door T-Frame. The new Sterling T-Frame protects against warpage . . . makes pocket sturdier . . . insures trouble-free performance. Complete package includes all steel header and split jambs, track and adjustable hangers and guide strip.

Sterling means Quality

STERLING HARDWARE MFG. CO.
Chicago 18, Illinois

SEE OUR CATALOG IN SWEET'S:
Architectural File • Light Construction File

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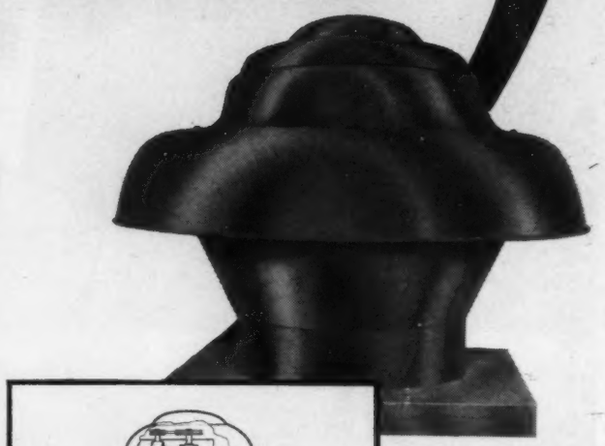
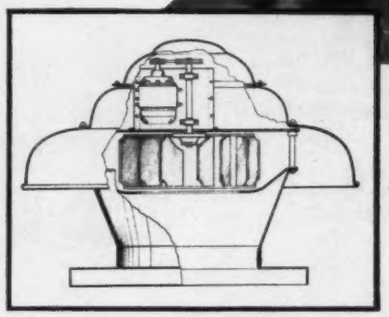
install kitten-quiet VENTILATION

Specify the

PENN

DOMEX





Low velocities and low rotational speeds are combined in the Domex to provide the hushed air movement so necessary in modern building ventilation.

V-Belt driven centrifugal fans in attractive and ageless spun aluminum housings permit capacity selections from 400 to 4000 cfm. This also permits standardization of roof openings and provides a uniformity of appearance and height for all roof mounted fans through this wide range of capacities.

The Penn Ventilator man in your area has complete data on these versatile exhausters as well as the other powered and gravity ventilators in Penn's complete line.

Complete Literature Available Write to Engineering Department

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Member of the Power Fan Manufacturers Association

FOR MORE THAN 25 YEARS THE BUILDERS' TOP LINE

AMERICA'S FASTEST-GROWING BUILDING MATERIAL... *ECONOMICAL...MAINTENANCE-FREE*

J. Rich Steers' casting bed used for fabricating Pier C deck members.

THE PRODUCTION of precast concrete members prestressed with 7-wire stress-relieved strands pre-tensioned and bonded has grown enormously in the past two years. Starting virtually at scratch, millions of square feet of bridge deck and floors and roofs for buildings are now being produced... part of it in the thirty odd universal casting beds scattered across the country... another part in the special beds set up for individual structures such as:

200,000 sq. ft. of heavy deck for Pier C in Hoboken, N. J.;

24 miles of 56-ft. span sections for Lake Pontchartrain in Louisiana;

9,400 feet of 50-ft. span sections for bridge-tunnel crossing at Hampton Roads, Va.

A big reason for this growth is lower cost compared with other materials and with other methods of prestressing concrete. Another is the development by Roebling of stress-relieved 7-wire strand for pre-tensioned bonded work.

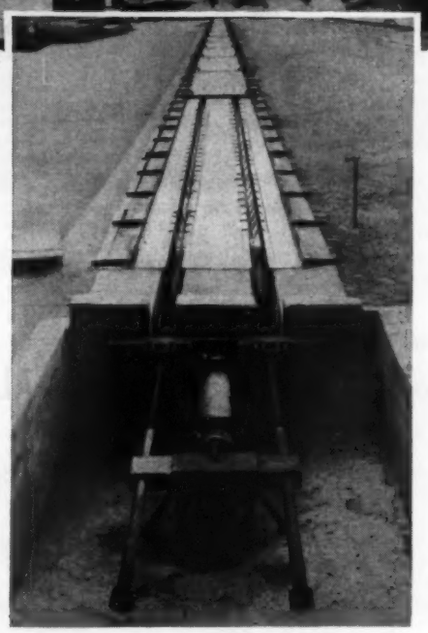
7-wire strand provides about 50% greater surface area for bond than single wires of the same strength. It also provides added mechanical bond as the concrete sets in the valleys between the outside wires.

Stress-relieving the strand raises the yield strength of the steel and produces a more pliable unit. This has made possible the use of still larger units and higher initial stresses with attendant economies in both material and labor costs.

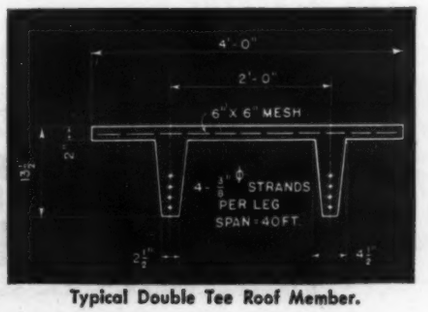
Since its development, Roebling has fabricated millions of feet of 7-wire stress-relieved strand and is ready to meet today's demand. Write us for brochure explaining pre-tensioned bonded prestressed concrete and for answers to any particular questions. Construction Materials Division, John A. Roebling's Sons Corporation, Trenton 2, New Jersey.

ROEBLING

Subsidiary of The Colorado Fuel and Iron Corporation

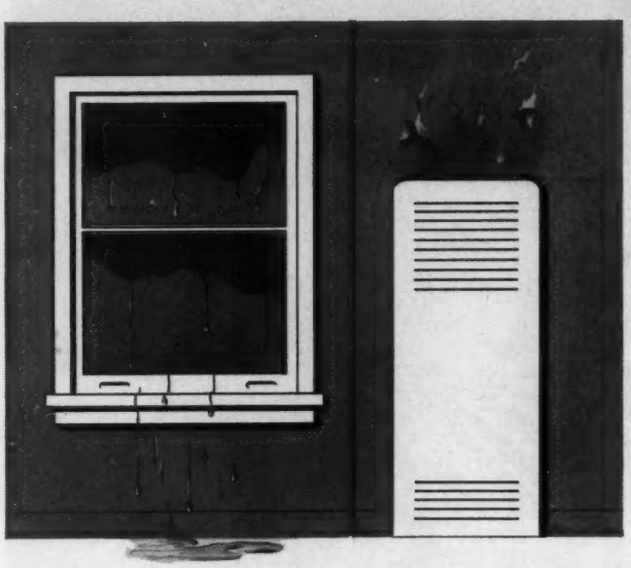


Double Tee casting bed at Duracrete, Inc., Leesburg, Florida. Besides universal beds for fabricating all type members, some plants have beds like that shown here to handle the steady volume of double tees.



Typical Double Tee Roof Member.

what home buyers don't know CAN hurt them... and you!



Blistered walls... unhealthy, stale-smelling room air.. condensation damage to walls and furnishings... rusted out appliances and vent pipes... these are just some of the results when gas appliances are not properly vented. They hurt the home owner and his dissatisfaction hurts you.

Because your client depends on your specifications to protect him, why be content with an inferior vent that can jeopardize his confidence in you and your homes? Why? — when such venting failures can easily be prevented by a correctly designed gas vent.

Be sure of correct gas venting in your homes... specify METALBESTOS

- the modern double-wall, insulated vent
- keeps inner pipe hot, provides a strong draft for quick, complete removal of vent gases.
- outer pipe stays cool, prevents dangerous overheating of adjacent construction.
- easily installed — no cementing, no heavy bracing — saves time and labor.
- durable all-metal construction, can't break or crack, highly corrosion resistant.

Insist on dependable gas venting... specify METALBESTOS

... it costs less to be sure with the best.

Listed by Underwriters' Laboratories, Inc. as a Type B vent for use with approved gas appliances.

METALBESTOS DIVISION
WILLIAM WALLACE COMPANY · BELMONT, CALIF.

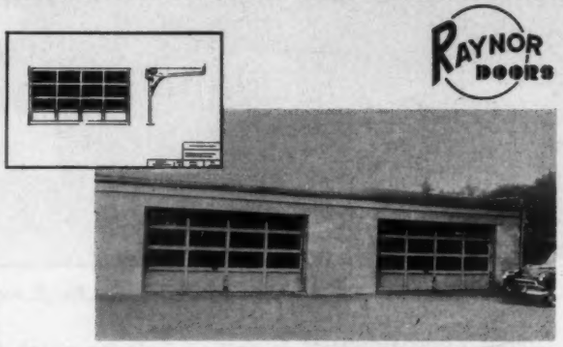
Stocked by principal jobbers in major cities. Factory warehouses in Atlanta, Dallas, Philadelphia, Des Moines, Chicago, New Orleans.

SPECIAL DOORS for SPECIAL OPENINGS

RAYNOR DOORS

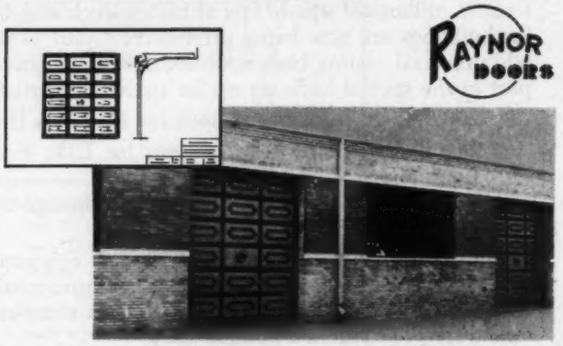
Raynor Engineering Department

RAYNOR DOORS



Raynor Engineering Department

RAYNOR DOORS



Raynor Engineering Department

THE complete Raynor line, residential, commercial and industrial is engineered to your specifications, built for long lasting trouble-free service and styled for beauty that is so essential with today's modern building trends. Embodying only the finest in quality materials and employing engineers and craftsmen who are well versed in door building know-how, you are assured that when you specify Raynor, you specify the very best.

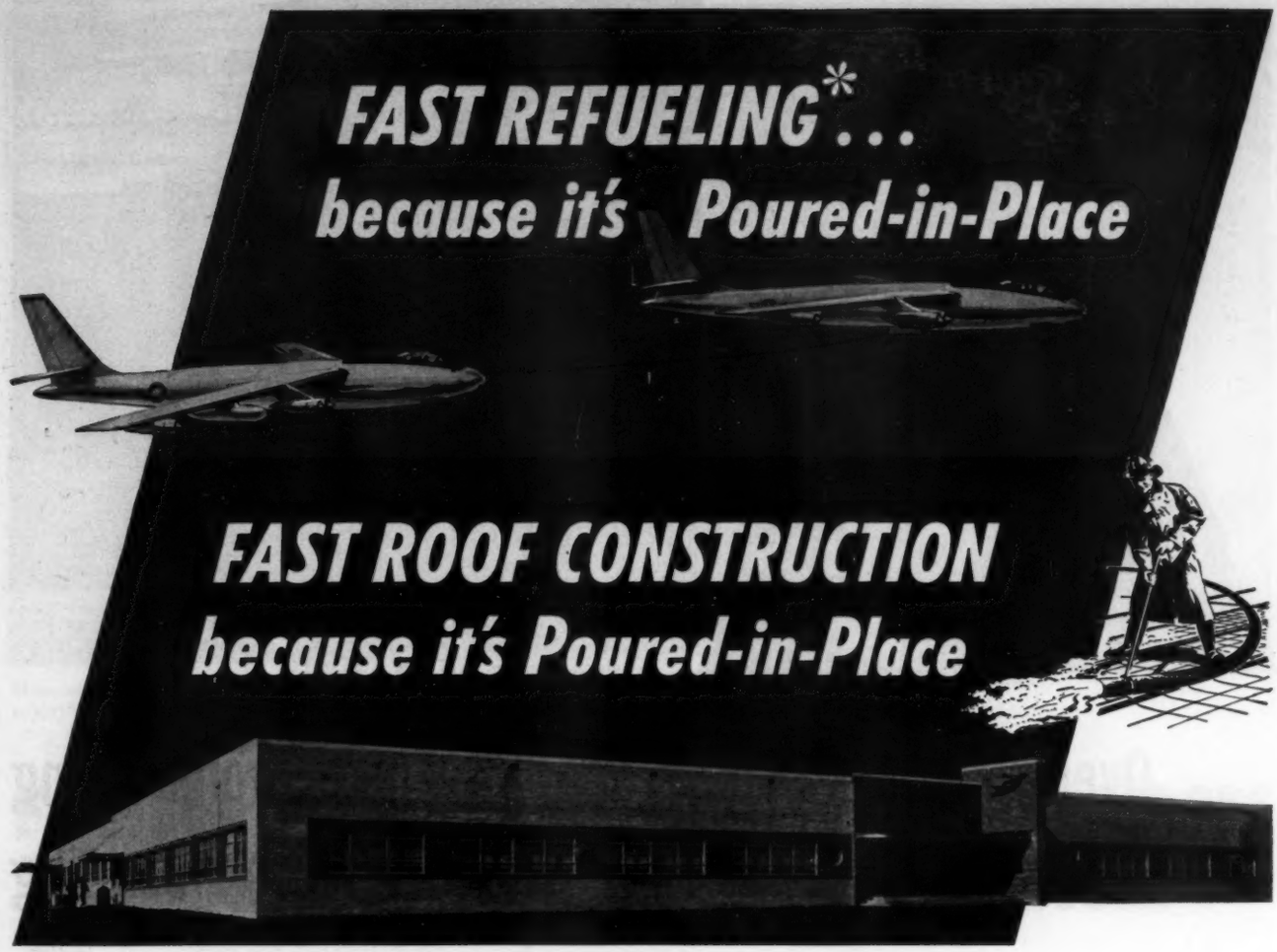
If you have not already done so—we urge you to inspect the Raynor catalog in Sweet's File.

RAYNOR

If additional information is desired, check your telephone directory for the name of your nearest Raynor representative or write direct.

RAYNOR MANUFACTURING CO., DIXON, ILLINOIS

Builders of a complete line of Wood Sectional Overhead Doors.



*New headquarters of FLIGHT REFUELING, INC., at Friendship International Airport, Baltimore, Md. *Engineers and Gen. Contractor:* Armiger Construction Corporation, Baltimore, Md. *Roof Deck Applicator:* J. B. Eurell Company, Lansdowne, Pa.

FLIGHT REFUELING, INC., originators of the Probe and Drogue systems of refueling aircraft in flight, specified a fireproof Gold Bond "Firefighter" Roof Deck for their new plant at Friendship International Airport. Nearly 70,000 square feet of incombustible gypsum protects valuable refueling equipment against fire danger.

Gypsum Roof Decks go up fast...*up to 30,000 sq. ft. can be poured in a single day!* They are adaptable to all industrial roof designs—pitched, barreled or flat. The low dead load of a Gold Bond "Firefighter" Roof Deck permits lighter supporting structures, allowing substantial construction savings. Plants like FLIGHT REFUELING, INC., have lower maintenance costs with Gypsum Roof Decks. Roof surfaces can be easily cut or patched to meet any desired modification in design.

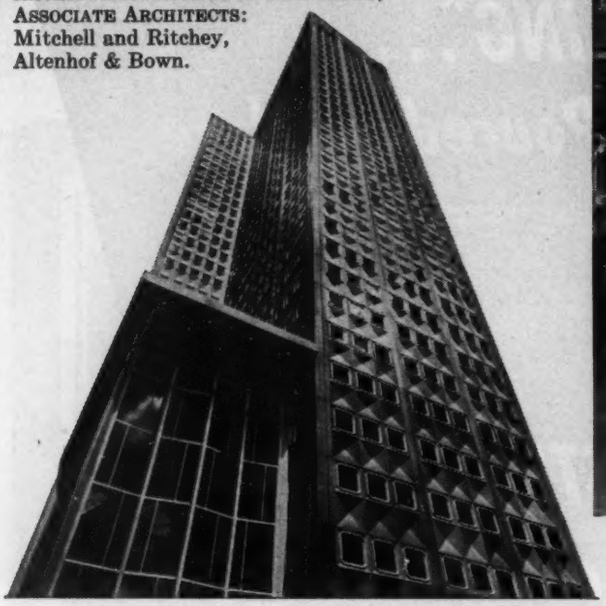
Full details on "Firefighter" Roof Decks are available by writing Dept. AR-45, National Gypsum Company, Buffalo 2, New York, for Technical Bulletin No. 589

NATIONAL GYPSUM COMPANY • BUFFALO 2, NEW YORK

Build better with Gold Bond

. . . "FIREFIGHTER" GYPSUM ROOF DECK

The Aluminum Company of America's new home in Pittsburgh, Pennsylvania. ARCHITECTS: Harrison & Abramovitz; ASSOCIATE ARCHITECTS: Mitchell and Ritchey, Altenhof & Bown.



Photostat room in the Alcoa Building. This Flexachrome floor is the last word in resiliency, foot comfort and beauty. It's a cinch to clean. And how it *wears!*

Over 100,000 square feet of Flexachrome bring Floor Beauty and Economy to The Alcoa Building

Modern planning calls for Flexachrome.

That's why this "dressy," durable and distinctive vinyl plastic-asbestos tile is almost everywhere you go at Alcoa.

Flexachrome gives years and years *and years* of trouble-free service at extremely low maintenance cost. It is highly resistant to wear. Highly resistant to acids and alkalies, too. Completely greaseproof. Safe to walk on. Extremely easy to clean because of its close-textured surface.

Exceptionally fine color and design versatility, a wide range of sizes and tile-at-a-time installation, make pattern possibilities almost endless.

Ask your Tile-Tex Contractor about Flexachrome and other Tile-Tex Flooring Products. He is listed in the classified telephone directory. You'll find his counsel invaluable.

THE TILE-TEX DIVISION, The Flintkote Company, 1234 McKinley Avenue, Chicago Heights, Illinois

TILE-TEX—PIONEER DIVISION, The Flintkote Company, P. O. Box 2216, Terminal Annex, Los Angeles 54, California

The Flintkote Company of Canada, Ltd., 30th Street, Long Branch, Toronto, Canada

See Our Catalog in Sweet's Files.

*Reg. U. S. Pat. Off. †Trademark of The Flintkote Company

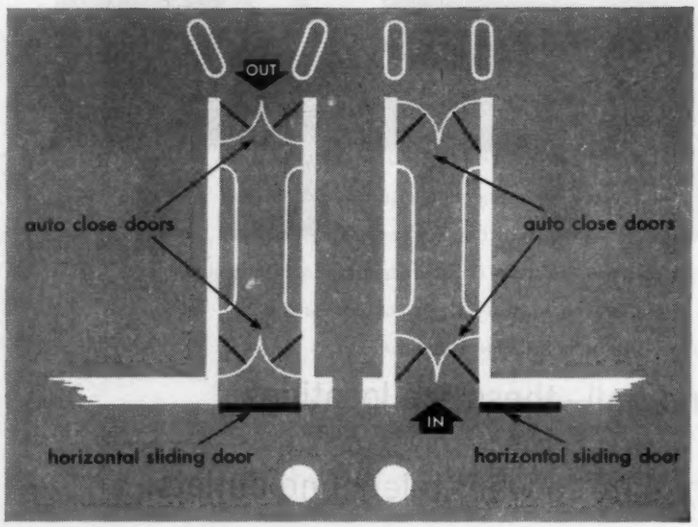
Flexachrome adds a pleasant, cheerful note to this Alcoa office. This vinyl plastic tile comes in 23 beautiful colors—solid and marbleized. And the colors are "good all the way through."

TILE-TEX... *Complete Flooring Service*

Manufacturers of Flexachrome... Tile-Tex*... Tuff-Tex*... Vitachrome*... Holiday†... Mura-Tex*... and Modnar†, the latest development in asphalt tile.*

One-way door systems speed handling. Fork lift trucks enter −50°F freezer room at right and leave at left. To prevent interference with materials handling, a Jamison Super Freezer Door is installed in the center for pedestrian traffic.

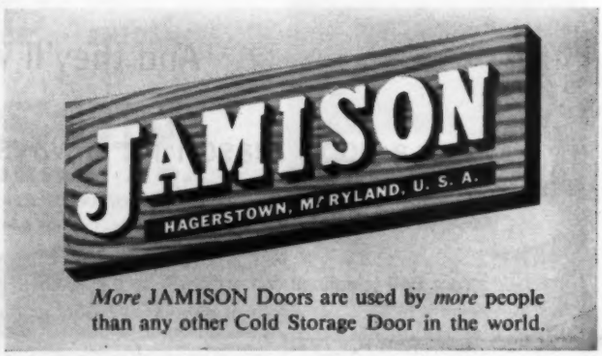
Freezer Warehouse Uses Jamison Doors in Novel One-Way Traffic System



Vestibule icing problem solved. Two sets of Auto-Close Doors 24 feet apart form a vestibule that acts as an air lock. Ice and frost formation is prevented on doors and floor by a top-floor warming system and by air conditioning the vestibule.

With one-way traffic and dehumidified air locks, the Merchants Terminal Corporation establishes a new high for handling efficiency and refrigeration economy in its new Landover, Maryland, warehouse. Thirty-five Jamison Doors play a large part in this operation. For additional information about cold storage doors, consult your architect or write to JAMISON COLD STORAGE DOOR CO., HAGERSTOWN, MD.

Architect: Van Rensaler P. Saxe, Baltimore, Md.
Consultant: A. W. Ruff and Luke St. Onge
V. C. Patterson & Associates, York, Penna.



More JAMISON Doors are used by *more* people than any other Cold Storage Door in the world.

Bedroom and kitchen, den and hall—these are locations

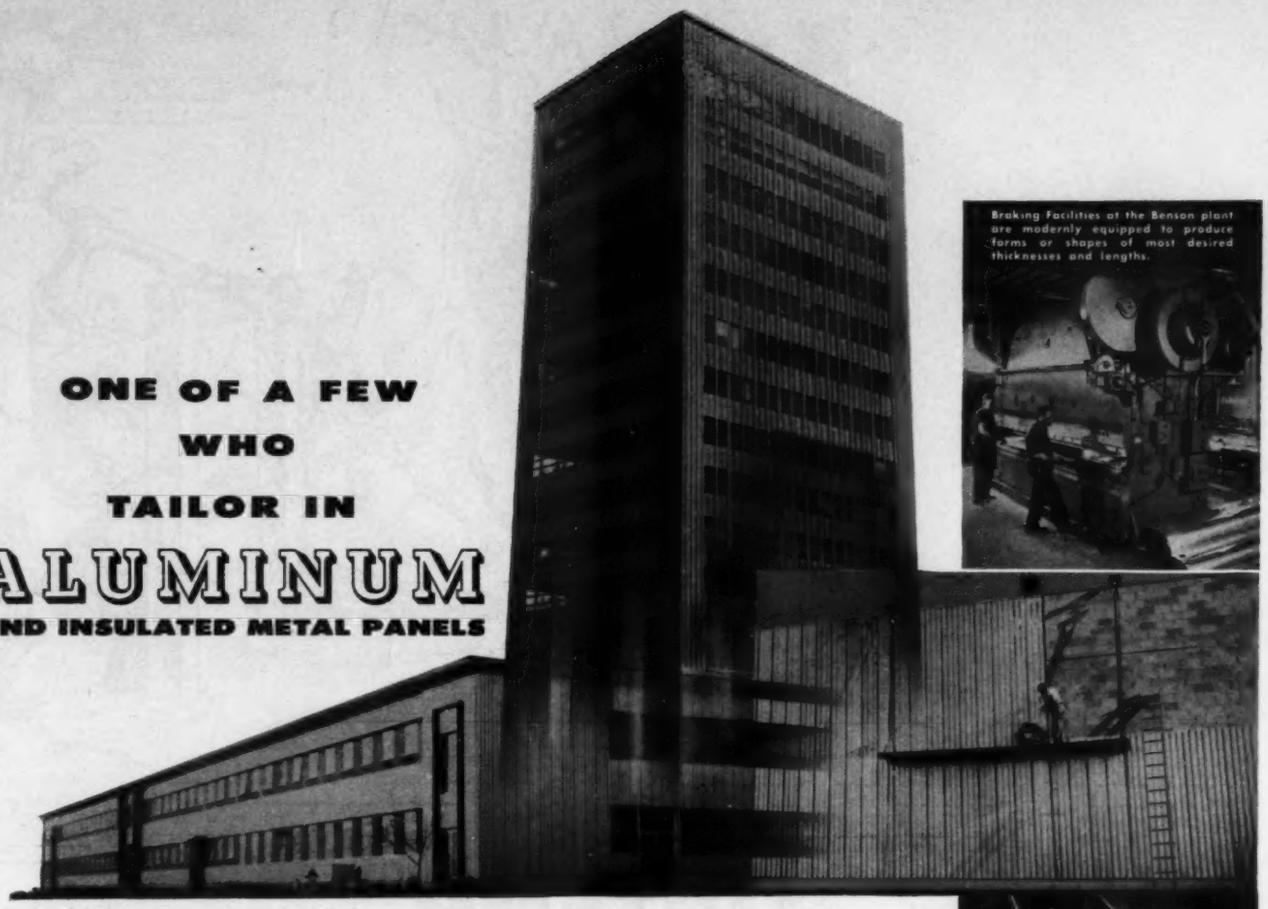
where your clients are sure to want telephone outlets.

And they'll want the wires concealed—

a good reason for always specifying telephone conduit.

Your Bell telephone company will be glad to help you work out economical conduit installations.
Just call your nearest business office. **BELL TELEPHONE SYSTEM**

ONE OF A FEW WHO TAILOR IN ALUMINUM AND INSULATED METAL PANELS



Braking Facilities at the Benson plant are modernly equipped to produce forms or shapes of most desired thicknesses and lengths.

TO GIVE YOU DESIGN VARIATION IN THIN LIGHTWEIGHT CURTAIN WALLS

. . . the counterpart of any structural steel frame

Increasing architectural acceptance of the new lightweight wall system, attests to its advantages—in construction speed, cost economies and distinctive facades. Benson Manufacturing Company, experienced fabricators of "in demand" aluminum, stainless steel and insulated metal curtain wall panels, extruded aluminum windows and doors, is qualified to help coordinate varied requirements adaptable to any class of construction, heavy industrial, institutional, schools, hospitals, apartments, and commercial buildings.

Sectional view of a battery of eight heavy hydraulic presses, capable of producing large one piece drawn shells and enclosures.

FREE PLANNING SERVICE through its nationwide Architectural-Engineering Service. Benson is prepared to work with architects and their contractors on design problems, overall planning — as applied to new construction or modernization. To draw on this experienced help — simply write direct.

ALUMINUM AND INSULATED METAL PANEL **CURTAIN WALLS • WINDOWS • DOORS • ENTRANCES**

SINCE 1907

Architectural Division **BENSON MANUFACTURING CO.**

18TH & AGNES • KANSAS CITY, MISSOURI

LOS ANGELES • NEW YORK

on request

New Specification Folder, AIA File No. 17-A, complete with product data and job specifications on BENSON curtain-walls.

BENSON

B

Need help
on your
Air Conditioning
problem?

The Bettmann Archive

This 16th century woodcut shows a "one manpower" air conditioning unit. From the size of that bellows, it looks as if this fellow could use some help. If you need assistance on air conditioning problems for your clients, let Airtemp help you.

Just call on AIRTEMP

Airtemp offers the help you need in planning commercial and industrial air conditioning

Get Help from Top Engineers
Through Airtemp Construction Corporation, a subsidiary of Chrysler Corporation, we offer architects, engineers and contractors the advisory service of engineering specialists—pioneers in commercial and industrial air conditioning.

Get the System You Need
Airtemp manufactures a complete range of precision-built equipment for *every* type of modern air conditioning system—conventional or specially engineered, for a room or a building.

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Everyone knows and trusts the Chrysler name. You can't go wrong on specifying a name your clients trust.

You're Sure of Good Service
You'll always be assured of dependable local service—thanks to Airtemp's nationwide network of personnel and facilities.

And the Cost Will Please You
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WRITE FOR DETAILS
You can get complete information on this Airtemp service simply by writing to: Airtemp Division, Chrysler Corporation, Dept. AR-4-55, Dayton 1, Ohio.

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AIRTEMP
Comfort Zone

IT'S AIRTEMP—FROM COAST TO COAST!

Union Pacific Building, Omaha, Nebr. Architect: Davis Hunt, Chicago; Engineers: Ritter & Mott, Chicago; Contractors: James Stewart & Company.

Harold Grubman Company, North Hollywood, Calif. Engineer: Sam L. Kaye, Los Angeles; Builders: Craig and Randall, Los Angeles.

Chrysler Building East, New York, N. Y. Architects: Reinhard Hofmeister & Walquist; Consulting Engineers (Structural): Edwards & Hjorth; Consulting Engineers (Mechanical and Electrical): Guy B. Panero.

AIR CONDITIONING • HEATING FOR HOMES, BUSINESS, AND INDUSTRY

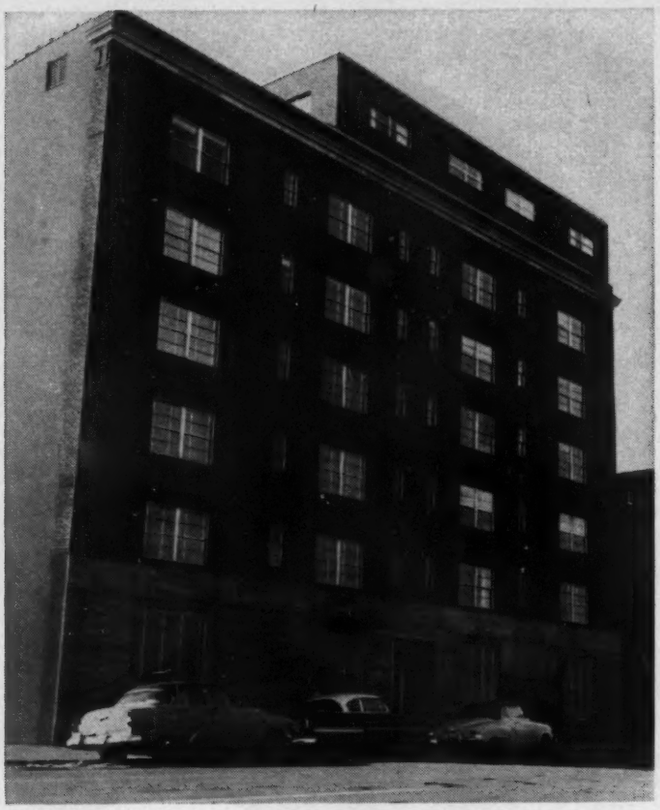
WHITE OAKS ELEMENTARY SCHOOL ANNEX
JOHN CARL WARNECKE, A.I.A.,
ARCHITECT

GRADE MARKED · TRADE MARKED *California Redwood*

CALIFORNIA REDWOOD ASSOCIATION · 576 SACRAMENTO STREET · SAN FRANCISCO 11, CALIFORNIA

G.E. HAS THE ANSWER TO AIR CONDITIONING PROBLEMS IN ANY OFFICE, STORE, OR FACTORY

G-E packaged air conditioning enables architect to "stretch" rentable space



RULE BUILDING has eight G-E Packaged Air Conditioners connected to two forced-draft cooling towers in old elevator penthouse. Ripstra-Turner Company were the contractors for the conversion.

Putting air conditioning equipment in an existing building generally reduces net rentable floor space. However, when architect Robert Morris, of Wichita, Kan., finished converting the 7-story Rule Apartments to the Rule Office Building, he had actually *added* rentable space.

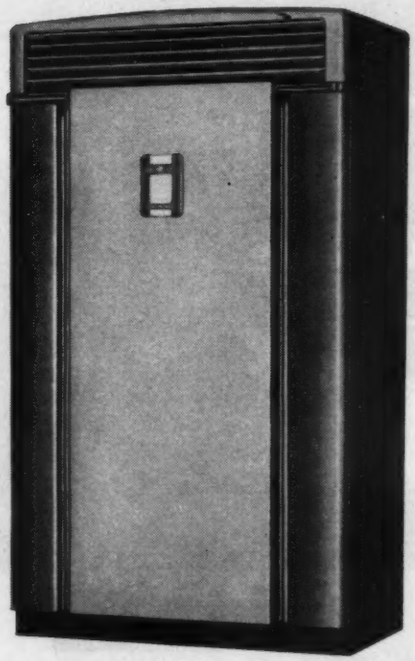
By putting 10-ton G-E Packaged Air Conditioners in small rooms formed by putting floors in old light courts, and a 7½-ton unit in the penthouse, he left the entire basement free for rental. Then, by equipping the packaged units with steam coils for winter heating, he gave each floor complete year-round control of its own "weather". By using the light courts, he was able to "stack" the units and save on piping.

He effected further savings by using overhead supply ducts. As a result, his clients got dependable, efficient year-round heating and cooling for only *87 cents per square foot.*

Write for complete architectural data.
General Electric Company,
Commercial & Industrial Air Conditioning Dept.,
5 Lawrence St., Bloomfield, New Jersey.

LOOK AT ALL THE ADVANTAGES OF USING G-E PACKAGED AIR CONDITIONERS FOR NEW AND REMODELLED BUILDINGS

- Low installation, low operating costs. Units come fully assembled.
- Give the architect maximum design freedom. Units can be used in space or concealed, with or without ducts. Simple connections.
- Streamlined cabinet styling that adds to the decor of any interior.
- 3, 5, 7½, 10, and 15 ton units can be used singly or in multiple installations to meet air conditioning needs of buildings of any size.
- Easily directed air flow for no-draft, no-waste air circulation.
- Muggy Weather Control removes excess moisture in any weather without over-chilling or clammy cooling. Simple damper control.
- Built and factory assembled by General Electric. 5-year warranty covers entire sealed cooling system, including freight and labor.

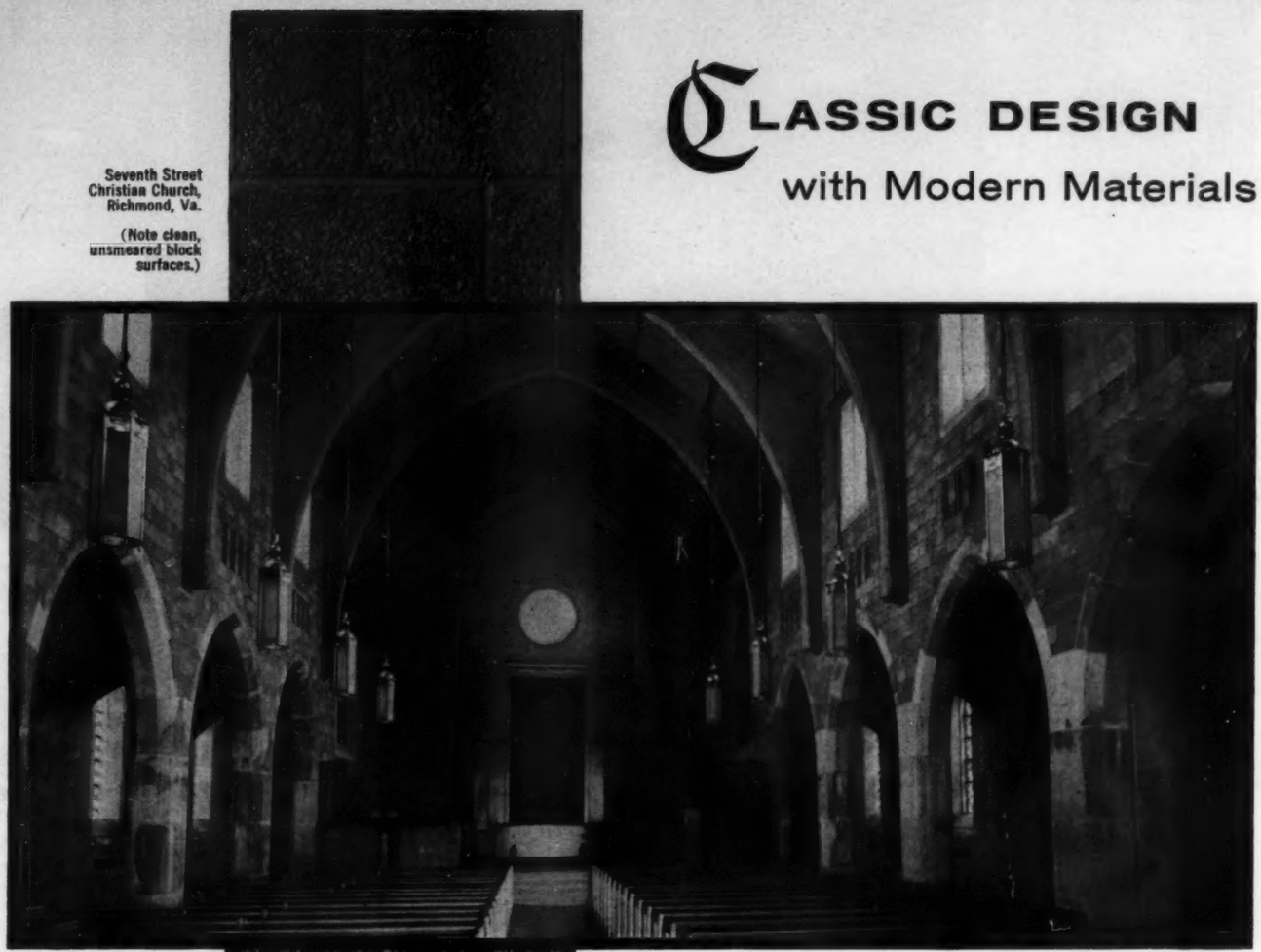


Packaged AIR CONDITIONERS

Progress Is Our Most Important Product

GENERAL ELECTRIC

CLASSIC DESIGN
with Modern Materials



Seventh Street Christian Church, Richmond, Va.

(Note clean, unsmeared block surfaces.)

Architects:
BASKERVILL & SON

General Contractor:
THORINGTON CONSTRUCTION CO.

Mason Contractor:
WILLIS & SHARPE

Concrete Units:
CONCRETE PIPE AND PRODUCTS CO., INC.

Dealer:
SOUTHERN BRICK & SUPPLY CO., INC.

Lehigh meets the most rigid mortar standards. U. S. Government Specification SS-C-181c, Type I and Type II. ASTM Specification C 91-53, Type I and Type II, which includes the autoclave test for soundness.

You'll go far before finding a better masonry job than the concrete block walls in this church of classic design. They are clean, attractive, neatly finished—an excellent example of the results to expect from the use of modern concrete block and Lehigh Mortar Cement.

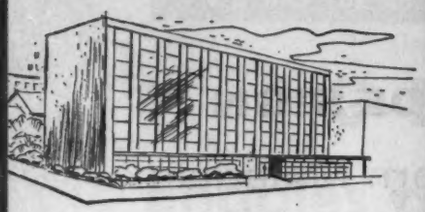
On this job, a stiffer-than-usual mortar mix was used, but, as the mason contractor says, "without sacrificing Lehigh's well-known workability, plasticity and bonding power." The surface was so clean and the effect so pleasing that the original plan to paint the walls was abandoned.

Good design, good workmanship, and the right materials are a winning combination. Lehigh Mortar Cement has proved itself the 'right material' in countless masonry jobs—both classic and modern—all over America.

LEHIGH
PORTLAND CEMENT CO.
Allentown, Pa.

LEHIGH PORTLAND CEMENT
LEHIGH MORTAR CEMENT
LEHIGH EARLY STRENGTH CEMENT
LEHIGH AIR-ENTRAINING CEMENTS

THE MASON CLINIC, Seattle, Washington



Architect and Engineers:
John Graham & Company

General Contractor:
J. G. Watts Construction Co.

Acoustical Contractor:
The Brower Co.

Acoustical Materials:
Armstrong Travertone
Armstrong Cushiontone

Rated incombustible, the Armstrong Travertone in this attractive lobby meets the strictest fire-safety codes. It's quickly installed by conventional cement or suspension methods, can be easily scored and cut to fit around ceiling fixtures.

A smartly fissured surface gives the Travertone ceiling in this private office the distinctive appearance of travertine marble. Its two-coat white paint finish has high light reflectivity and can be washed or repainted whenever desired.

Acoustical treatment adds beauty, as well as quiet, to modern clinic

Aluminum facing members and glareproof blue-green glass give the facade of Seattle's Mason Clinic a trim, uniform appearance. Inside, modern materials such as acoustical ceilings of Armstrong Travertone* and Cushiontone promote a cheerful and quiet atmosphere.

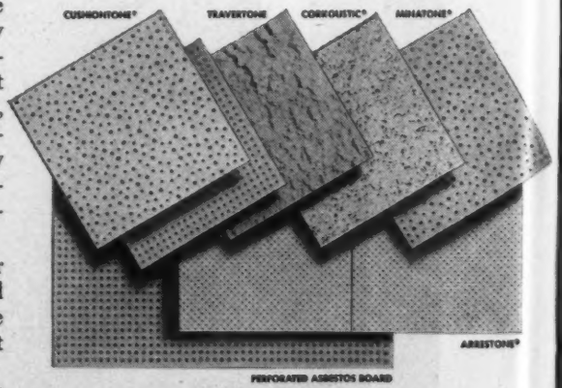
Used throughout the first floor of the clinic to add beauty and eliminate any chance of noise problems, Travertone absorbs as much as 80% of the noise that strikes it. Travertone's handsomely fissured, white painted surface has the smart appearance of travertine marble and stays new looking for years with a minimum of upkeep. Made of mineral wool fibers, Travertone is rated incombustible.

Cushiontone sound conditions the upper floors of the building. Both efficient and economical, this perforated wood fiber tile is frequently chosen when large areas must be acoustically treated at low cost.

Travertone and Cushiontone are two of the complete line of Armstrong sound-conditioning materials. Call in your Armstrong Acoustical Contractor for helpful advice in solving your noise problems. With a wide range of special features to choose from, there's an Armstrong material that meets the needs of every job. For your copy of the new 1955 edition of "Armstrong Acoustical Materials," write Armstrong Cork Company, 4204 Rock Street, Lancaster, Pa.

* Trade-Mark

High acoustical efficiency makes Armstrong Cushiontone a logical wall and ceiling material for this audio testing room. To meet high clinical sanitary standards, Cushiontone can be washed frequently without losing its effectiveness.



Armstrong
ACOUSTICAL MATERIALS
Cushiontone • Travertone • Minatone
Arrestone • Corkoustic • Perforated Asbestos Board

All Photos by Morley Baer

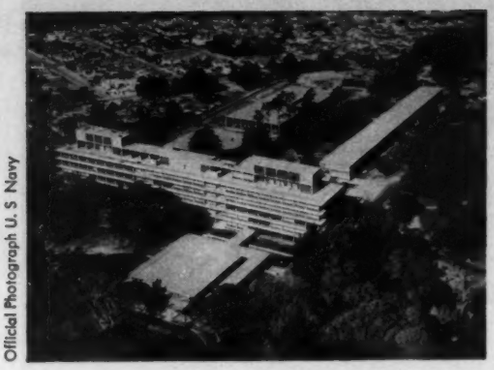
THE NAVY'S GRADUATE ENGINEERING SCHOOL

At the U. S. Naval Postgraduate School, Monterey, California

Skidmore, Owings & Merrill
Architects

Walter A. Netsch, Associate Partner in charge of design; William E. Dunlap, Architect in charge of construction; Isadore Thompson, Structural Engineer; Keller & Gannon, Mechanical Engineers; Dariel Fitzroy, Electrical Engineer; Charles M. Lee, Consulting Engineer, Soils

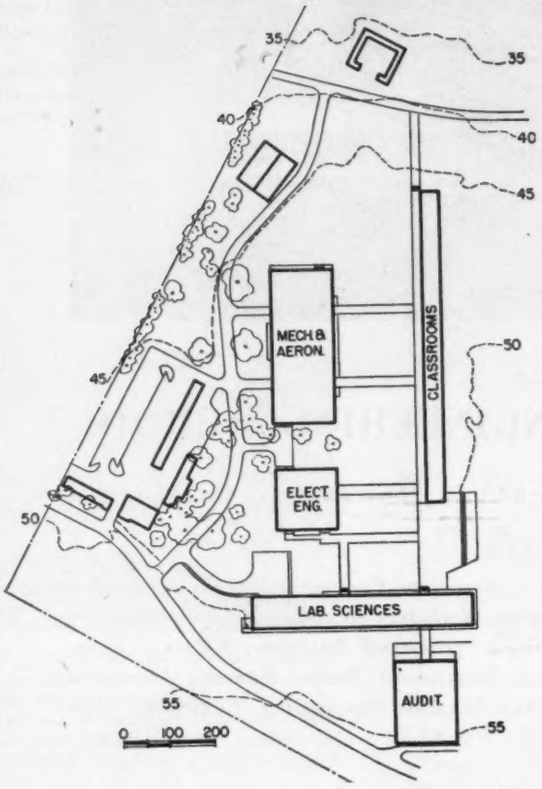
Official Photograph U. S. Navy



Official Photograph U. S Navy

This project, sponsored by BuPers and BuShips of the U. S. Navy, was built under the contract authority and administration of the Chief of the Bureau of Yards and Docks, represented by the District Officer in Charge of Construction, Twelfth Naval District

THE U. S. NAVAL POSTGRADUATE SCHOOL



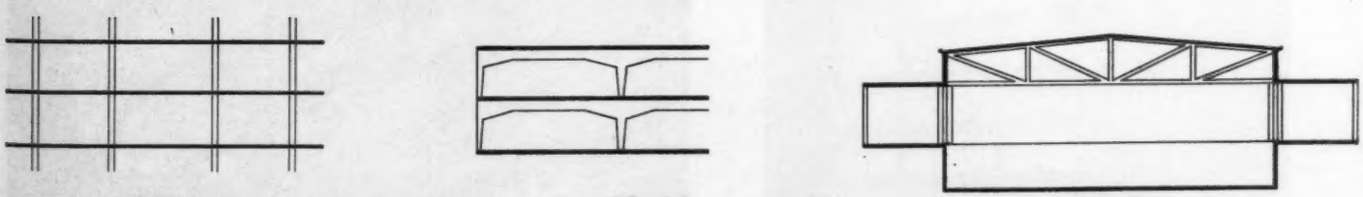
Integration of buildings with site's natural beauty to produce environment stimulating to spirit as well as mind, and satisfy functional and visual standards, was site planning basis

WHEN THE NAVY decided in 1948 on Monterey, Calif., as the new site for its Postgraduate School, housed in quarters at Annapolis inadequate to a contemplated enrollment expansion, it chose the old Hotel Del Monte property for the buildings. Funds for the Engineering School were appropriated in 1951 and these buildings are now complete; no funds have yet been allotted to the School of the Line. However, since the Line School's needs would have considerable effect on the Engineering School design, studies for it were included in the master plan.

Curriculum needs in type and amount of space, interdepartmental relationships and budget were primary problems to be solved. (The programming and analysis which led to the design solution were described in ARCHITECTURAL RECORD for June 1954.) Less tangible but as important were the goals of providing an environment both intellectually stimulating and visually satisfying, and of achieving a harmony between buildings and region through relation of building mass and volume to site rather than by following local architectural tradition.

Meeting the budget — project cost was slightly under $15 per sq ft, low for this type of construction in the area — meant economy in every design phase: structure, modular column spacing, prefabrication of wood window units, repetition of elements, stacking of laboratory units, multi-use of classrooms, were all factors in economy. Although each building maintains its own individual character, relation to other buildings and to site unifies the group as a single design expression.

Between Laboratory Sciences and Classroom Buildings (above, center and extreme right) is Court. Across page are (left) Electrical and Mechanical-Aeronautical Engineering and Classroom Buildings; (right) Mechanical-Aeronautical, Electrical Engineering, Laboratory Sciences Buildings



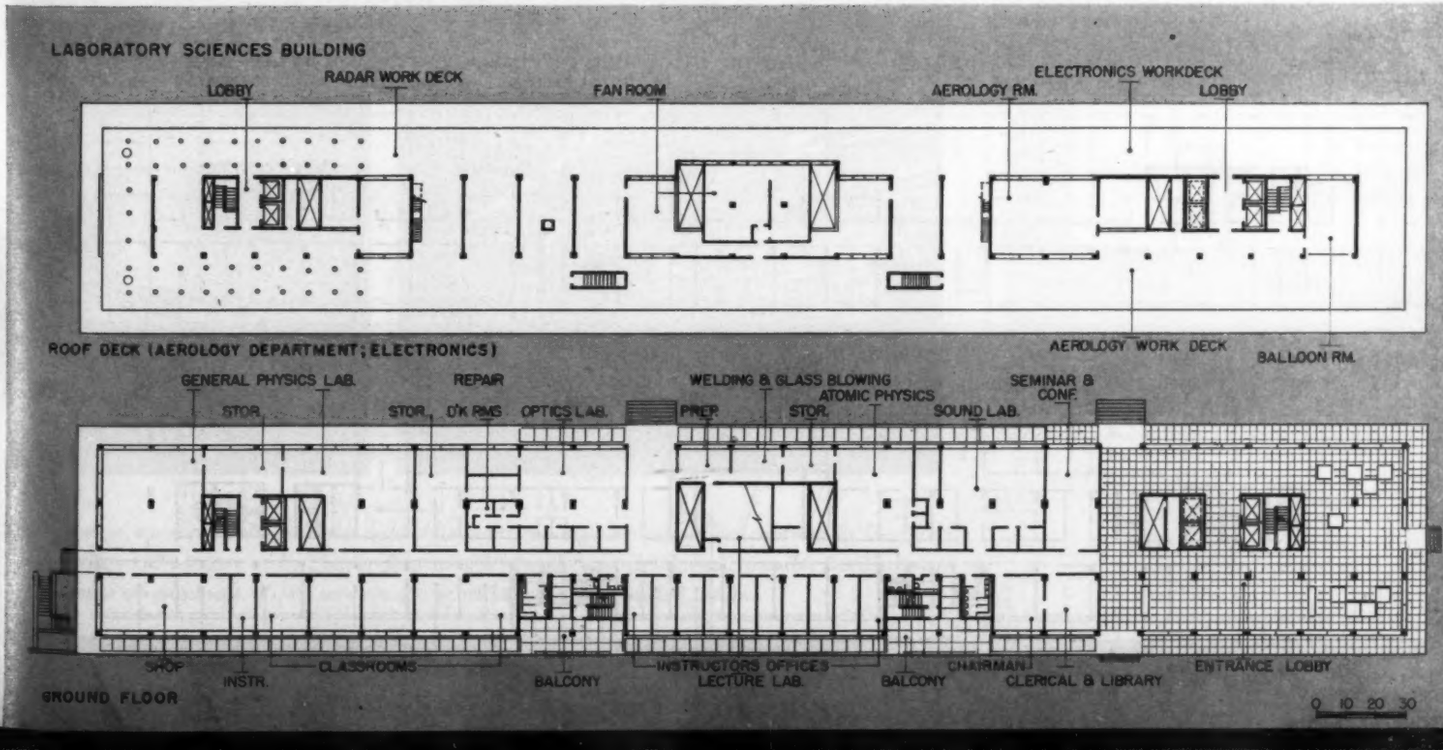
Three basic structural types provide variety of teaching space: left, flat plate for Laboratory Sciences and Classroom Buildings; center, long-span reinforced concrete arches for clear space in the two engineering lab buildings; right, reinforced concrete trusses framed into deep concrete girders for Lecture Auditorium Building

Cantilevered canopies continue around building as expression of flat plate construction, provide sun control, ease building maintenance; structure is dramatically revealed at night. Covered walk (below, right) between lab sciences and auditorium bridges sunken terrace outside cafeteria

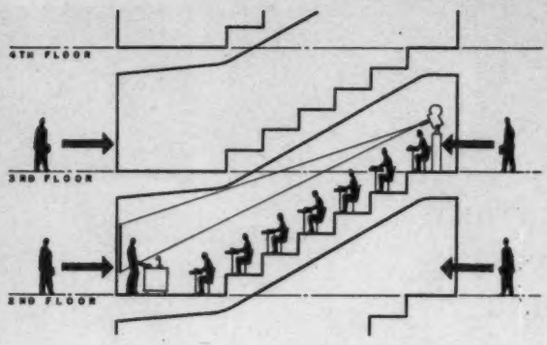
LABORATORY SCIENCES BUILDING

Physics, Chemistry, Metallurgy, Electronics, Aerology

From glass-walled lobby, outlook on one side is to Court; on other, where information desk, phone booths are (left), to auditorium and terrace. Building has administration offices besides teaching, research labs. Modular window units are prefabricated. Aerology and electronics departments, needing high elevation, are on roof

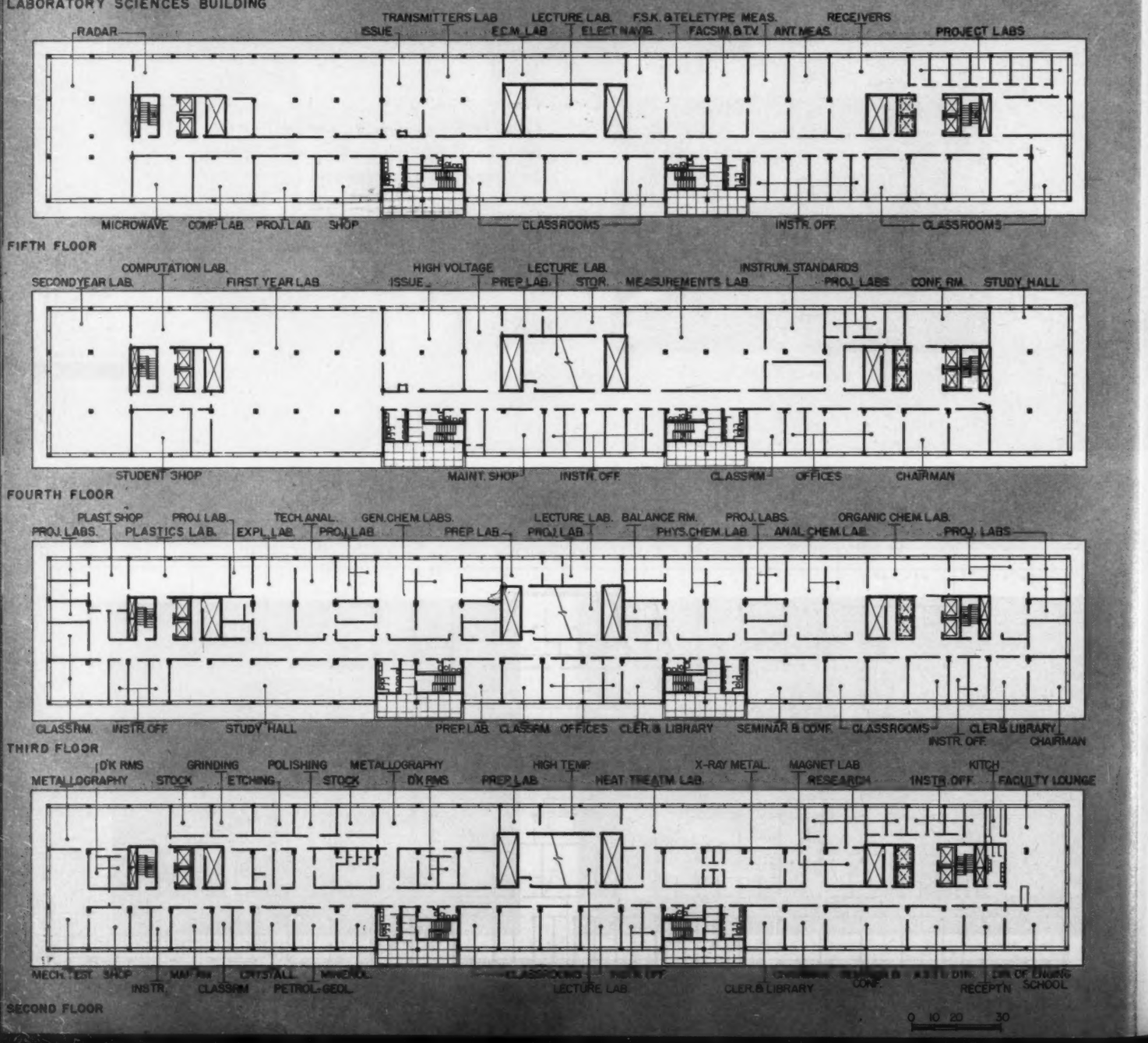


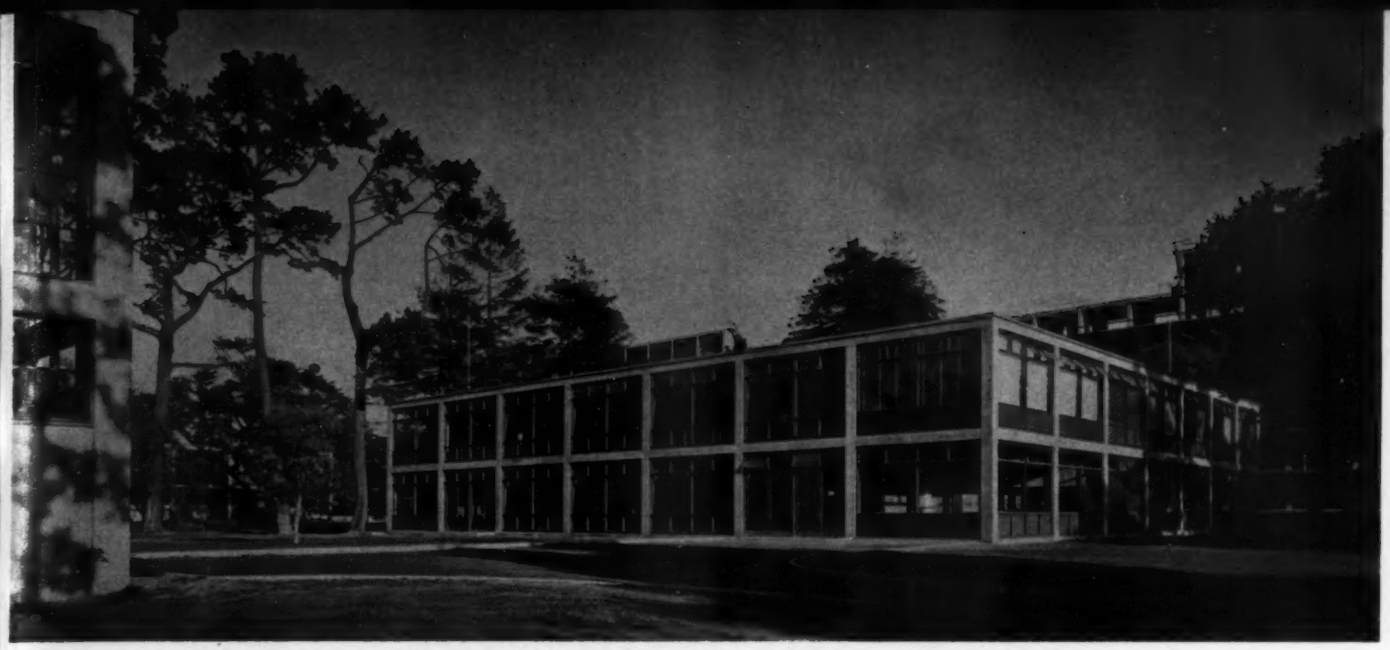
U. S. NAVAL POSTGRADUATE SCHOOL



Lecture laboratories run between floors, provide amphitheater seating, act as additional vertical circulation and can be used by departments on either floor

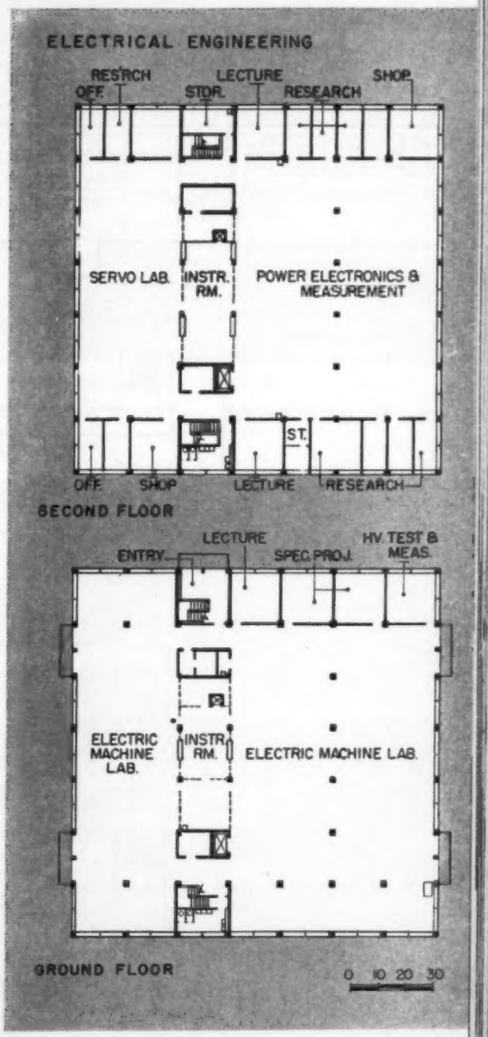
LABORATORY SCIENCES BUILDING





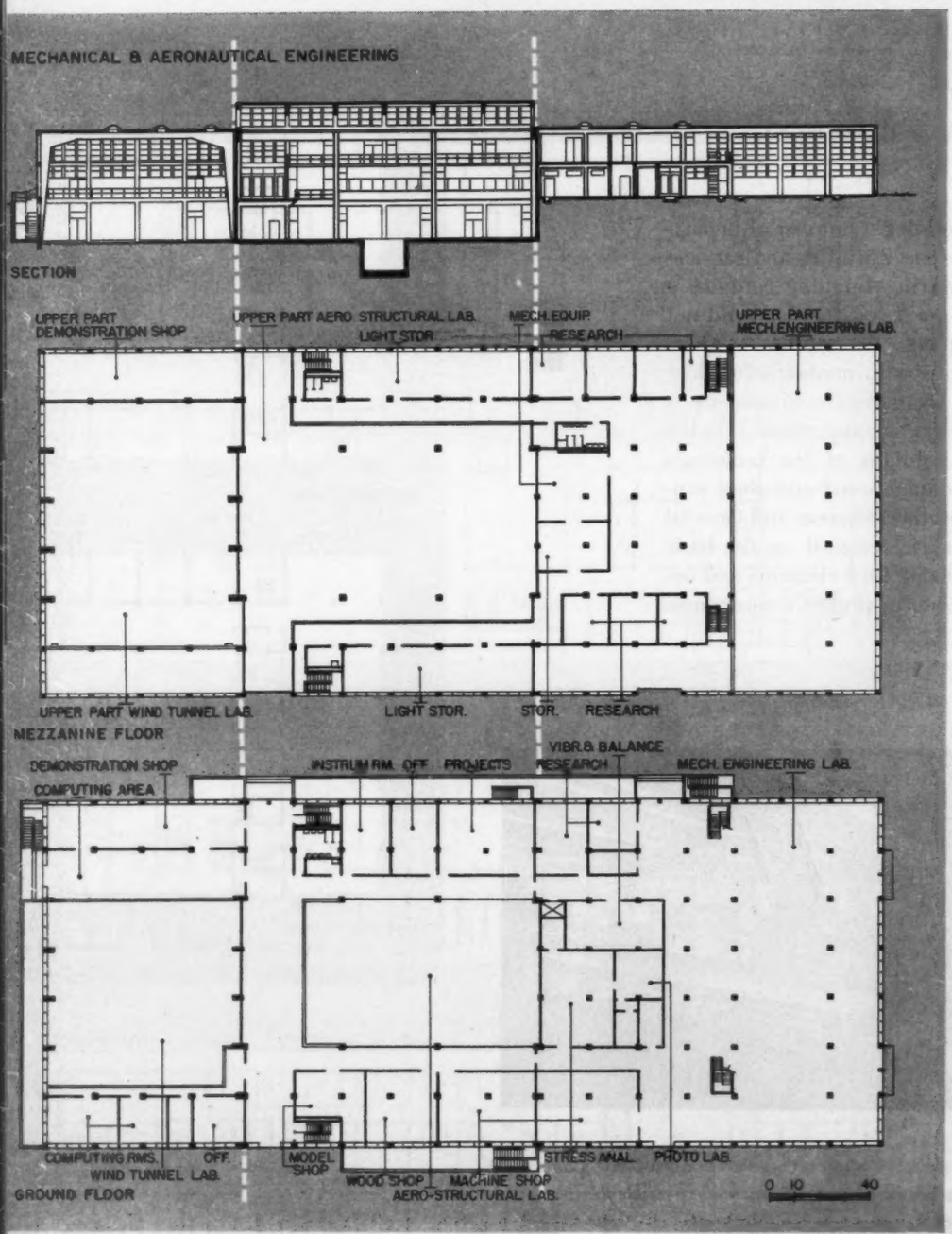
ELECTRICAL ENGINEERING BUILDING

While in the Laboratory Sciences Building a number of departments with similar requirements in space, utilities and services are combined, the Electrical Engineering Building contains a single department which, because of its special needs, could not be combined with any other department. The solution to these needs was a square, two-story building with unobstructed floor space and provisions for flexibility in arranging the equipment — much of it heavy, all of it needing electrical connections — in the various laboratories. Between the columns of the building's concrete frame are prefabricated modular wood-and-glass window wall units, used also in the Laboratory Sciences and General Classroom Buildings. Window units are designed on the basic column module of 18 ft 8 in. Repetition of such elements and use of a module were factors in maintaining the project's economical construction cost.



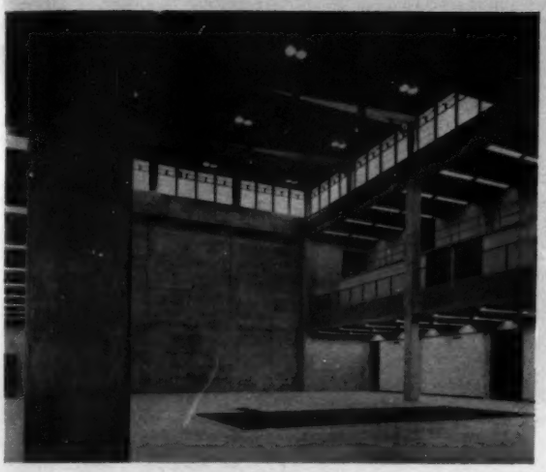
Large, unobstructed floor areas needed for electrical engineering labs are provided by long span reinforced concrete arches; under-floor trenches for electric wiring make possible flexible equipment arrangement. Piped services are in racks hung from ceiling, walls

U. S. NAVAL POSTGRADUATE SCHOOL



MECHANICAL &

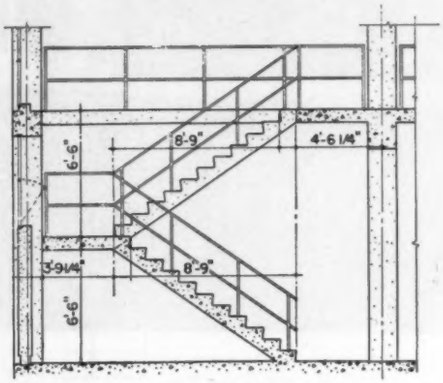
Building's three units are separated by expansion joints (indicated by white line on drawing) to prevent vibration transmission. Building is concrete framed, with modular column spacing; precast concrete panels fill between columns



Aerostructural lab, three and a half stories high, will eventually have 1,000,000 lb testing machine in specially designed pit at basement level. Long-span concrete arches in this lab and wind tunnel frame large, clear spaces for testing machines, wing and fuselage parts

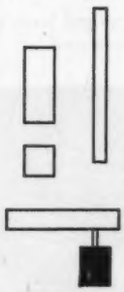
AERONAUTICAL ENGINEERING BUILDING

Although a common need for long-span laboratory space combined the Mechanical and Aeronautical Engineering Departments under one roof, the building's three laboratories are separate units providing for the special requirements of each department. Mechanical Engineering's two-story lab has a high crane for moving heavy equipment; the huge testing machines and airplane sections used in the Aerostructural lab and wind tunnel needed three stories. Plastic skylights daylight central areas of the building.



Concrete stairway in Mechanical Engineering lab is cantilevered. Extensive floor trench system, large water basins, crane were special department requirements

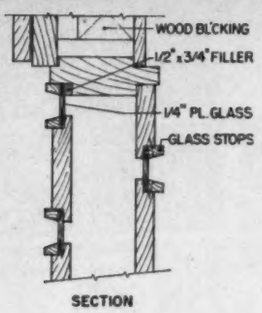
LECTURE AUDITORIUM BUILDING



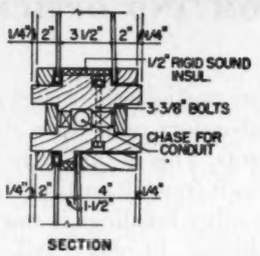
The below-ground level of the auditorium meets the practical need for a 1200-seat hall for lecture and study use by day and for such special occasions as commencement, faculty and student conferences, etc., and also makes possible a cafeteria on the lower level. It solves some esthetic problems too: the low building height contrasts with the five-story Laboratory Sciences Building behind; in a subtle acknowledgement of the site's beauty as well as the need for daylight in the auditorium, glass-panelled side walls permit a view through the building to opposite side; from inside, every seat has a view out to the surrounding trees.

Concrete trusses framed into deep concrete girders supported on four cross-shaped columns proved most economical fireproof solution to clear span for auditorium. Covered walks surround building, provide the only circulation. Cafeteria is on lower level

Below grade, auditorium side walls act as resonators; some of the narrow wood strip panels are acoustically treated, others are blank, backed with cement asbestos board. Walls at grade are double glazed for sound insulation

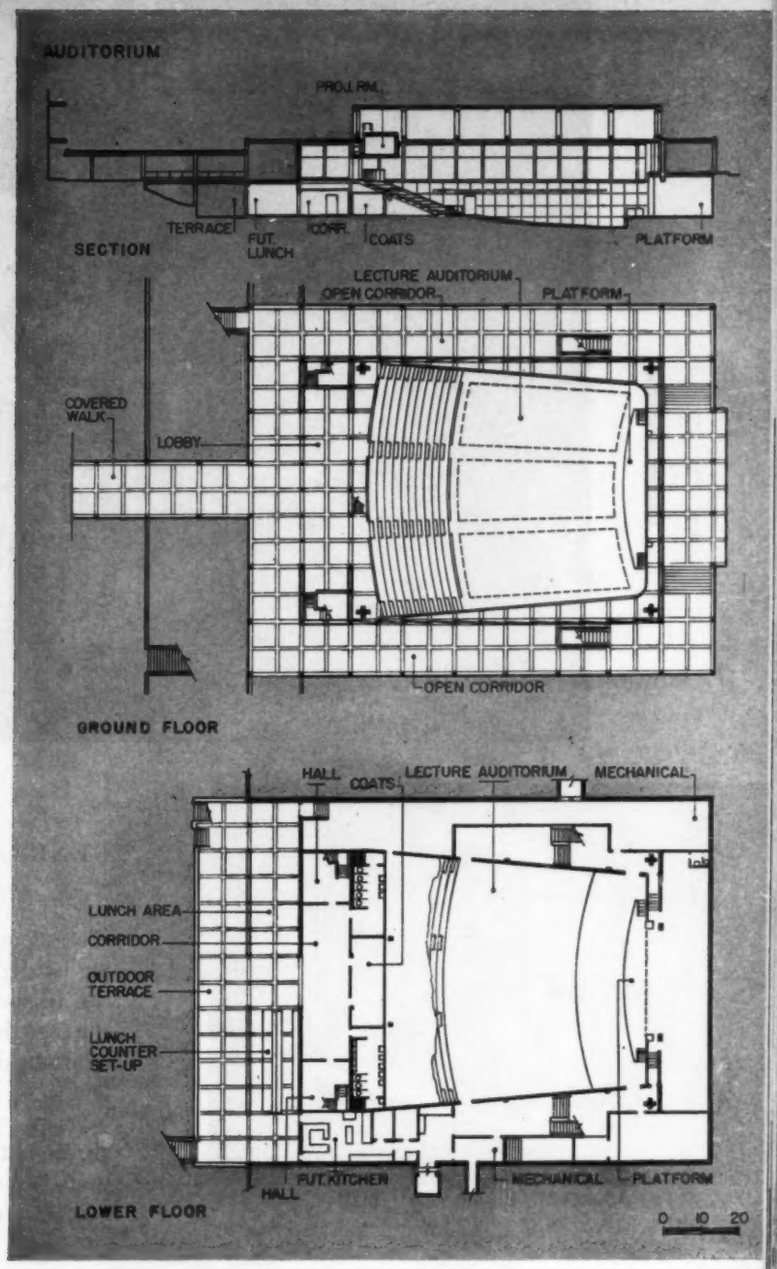


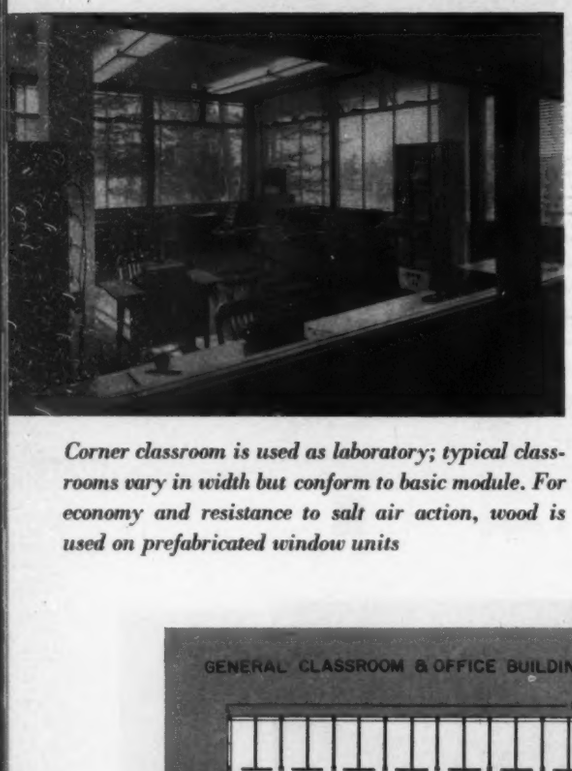
SECTION



SECTION

Front wall (top) is screen of dark wood battens and lavender Belgian glass strips. Double glazing (bottom) insulates for sound; for acoustic reasons one panel is angled

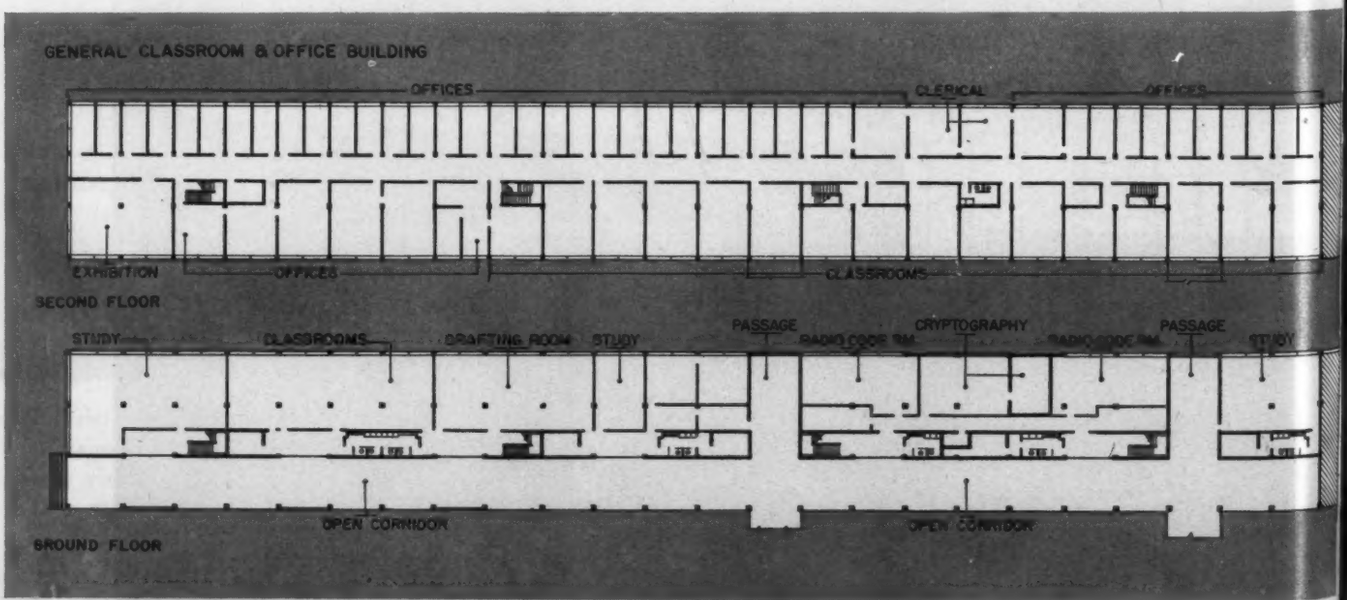


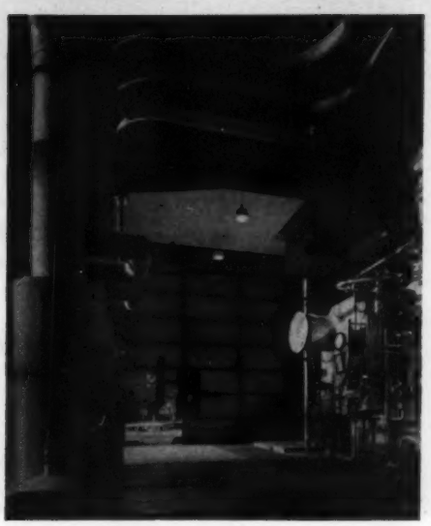


Corner classroom is used as laboratory; typical classrooms vary in width but conform to basic module. For economy and resistance to salt air action, wood is used on prefabricated window units

GENERAL CLASSROOM AND OFFICE BUILDING

Classrooms in this building are particularly needed for general teaching by departments whose laboratory operations are noisy, but they can be used by all departments. This flexibility in use derives from the fact that students come to it from all parts of the school; a direct relationship between it and other buildings is essential. The 655-ft length of the classroom building, in effect, links the engineering laboratory buildings with the Laboratory Sciences Building and, through it, with the Auditorium. In the original plans, covered walks made actual physical connection between buildings; the need for economy eliminated all but one (from Lab Sciences to Auditorium).

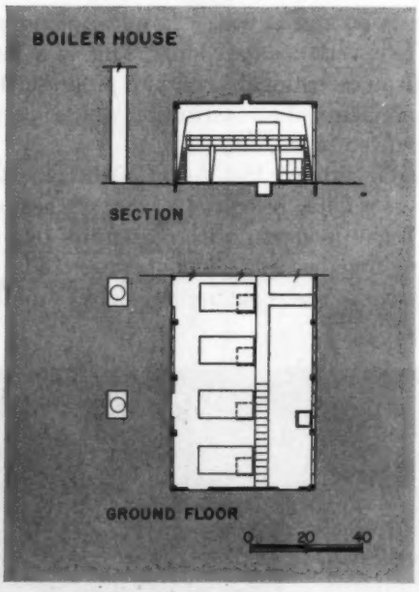


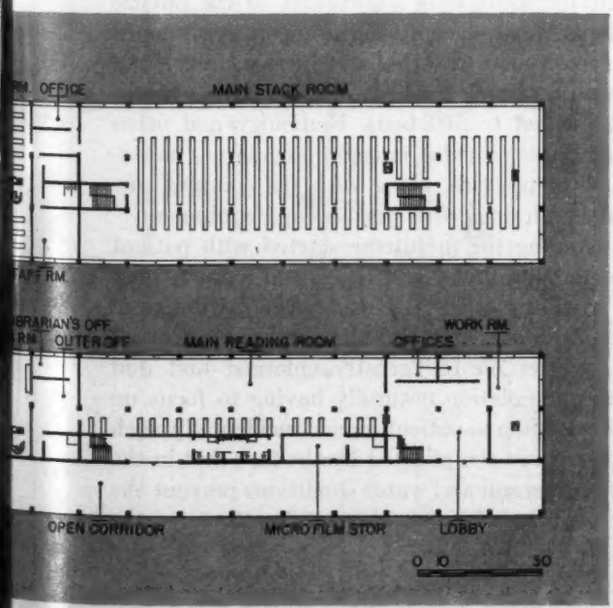


Designed in 20-ft bays, boiler house can be expanded easily by knocking out cement-asbestos panels in end wall (bottom); mezzanine (top) adds floor space at opposite end

BOILER PLANT

Like the master plan for the development of the site at Monterey, the boiler plant design was influenced by the then contemplated new buildings for the Postgraduate School of the Line (for which no appropriations have yet been made). An easily expandable structure was needed so that, as the heating and laboratory load increased, the plant's capacity could grow accordingly. Rigid concrete bents, designed in 20-ft bays with a span of 50 ft, can be added, and cement-asbestos panels in the end wall can be knocked out. Plant, enlarged before construction, now serves the whole station. Sash in this building are steel.





HOSPITAL FOR ADVANCED TECHNIQUES

Ochsner Foundation Hospital, New Orleans, La.
Ellerbe and Company, Architects and Engineers

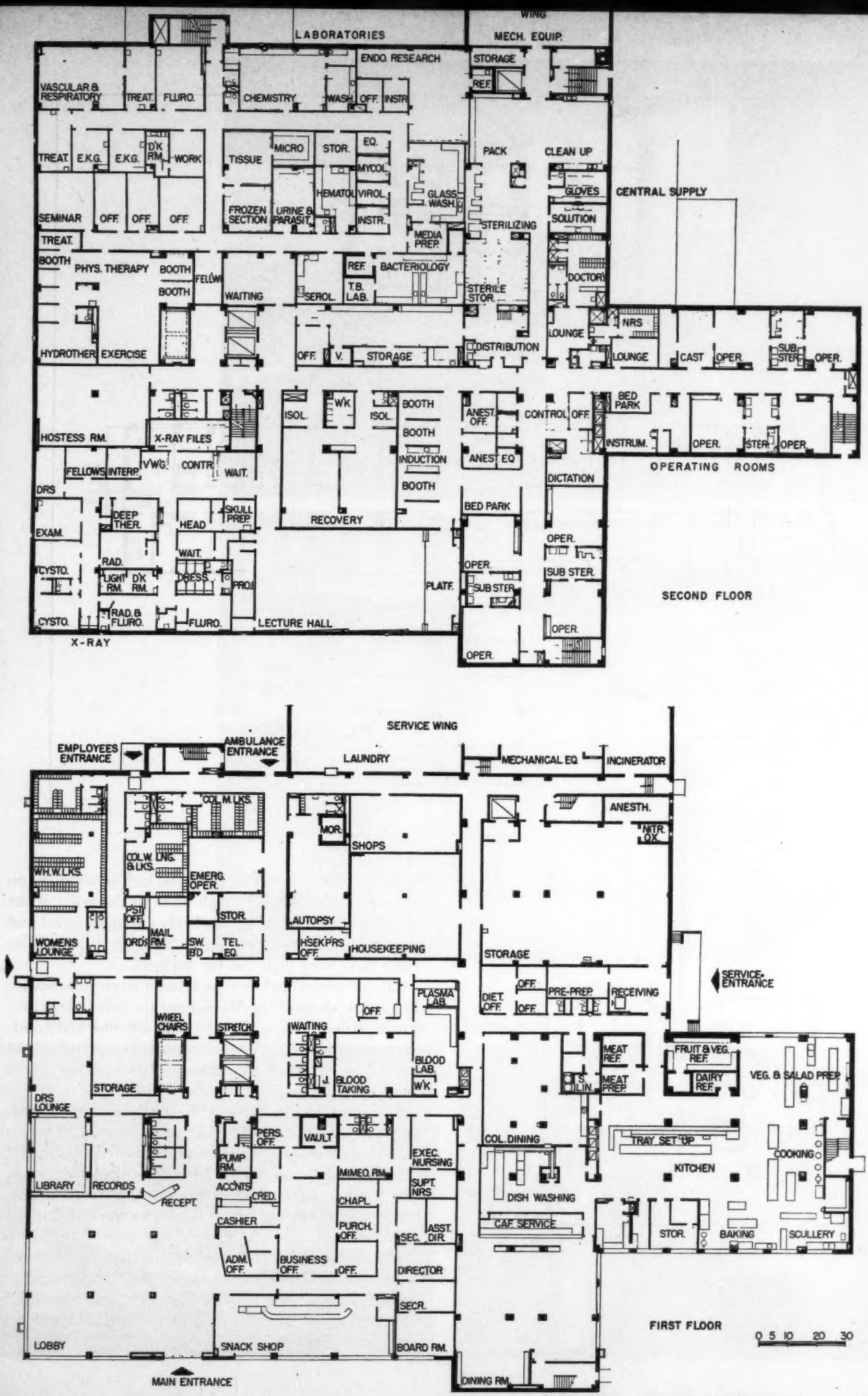
AS MEDICAL PRACTICE becomes more and more complicated — it is, and it will — hospital planning will necessarily follow the same course. This is a hospital building with an exceptionally complex program, matching the requirements of an institution which specializes in highly involved procedures.

The hospital group, the Alton Ochsner Medical Foundation, is a fairly recent development, begun only in 1940. It began modestly with a group of five physicians banding together in a clinic operation. The group practice, filling a real community need, rapidly expanded until it has become a permanent research, education and charitable operation. Its $5,500,000 new hospital will eventually be supplemented by a nurses' home (already built), a convalescent pavilion with guest accommodations, a hoped-for new building for the Clinic, and an also-hoped-for new building to replace present research facilities.

Frank Lotz Miller

The high technical level shows first in the outsize surgical department — eight major operating rooms, with a very complete anesthesia induction area, for a hospital now containing 250 beds. This capacity eventually will be raised to 500 beds. Radiology and other ancillary facilities are also uncommonly large, as advanced medical practice, along with the complex surgery, requires full diagnostic and therapy equipment.

In the planning the architects started with patient rooms and nursing units, and developed a fairly conventional cruciform scheme. This determined the basic plan of the building, and also the arrangement of all ancillary facilities on the greatly enlarged first and second floors, circulation naturally having to focus on the elevators leading to patient rooms. Incidentally, such problems here were complicated by the fact that in the New Orleans area soil and water conditions prevent the usual basement; here in effect the first floor becomes the


LABORATORIES
WING
MECH. EQUIP.
ENDO. RESEARCH
STORAGE
REF.
VASCULAR & RESPIRATORY
TREAT.
FLURO.
CHEMISTRY
WASH.
OFF.
INSTR.
TREAT.
E.K.G.
E.K.G.
D'K RM.
WORK
TISSUE
MICRO
STOR.
EQ.
MYCOL.
HEMATOL.
VIROL.
INSTR.
FROZEN SECTION
URINE & PARASIT.
PACK
CLEAN UP
GLASS WASH
GLOVES
CENTRAL SUPPLY
SOLUTION
STERILIZING
MEDIA PREP.
SEMINAR
OFF.
OFF.
OFF.
TREAT.
BOOTH
PHYS. THERAPY
BOOTH
BOOTH
FELLW.
WAITING
REF.
BACTERIOLOGY
SEROL.
T.B. LAB.
STERILE STOR.
DOCTORS
NRS
LOUNGE
HYDROTHER.
EXERCISE
OFF.
V.
STORAGE
DISTRIBUTION
LOUNGE
CAST
OPER.
SUB. STER.
OPER.
HOSTESS RM.
X-RAY FILES
ISOL.
W'K
ISOL.
BOOTH
BOOTH
INDUCTION
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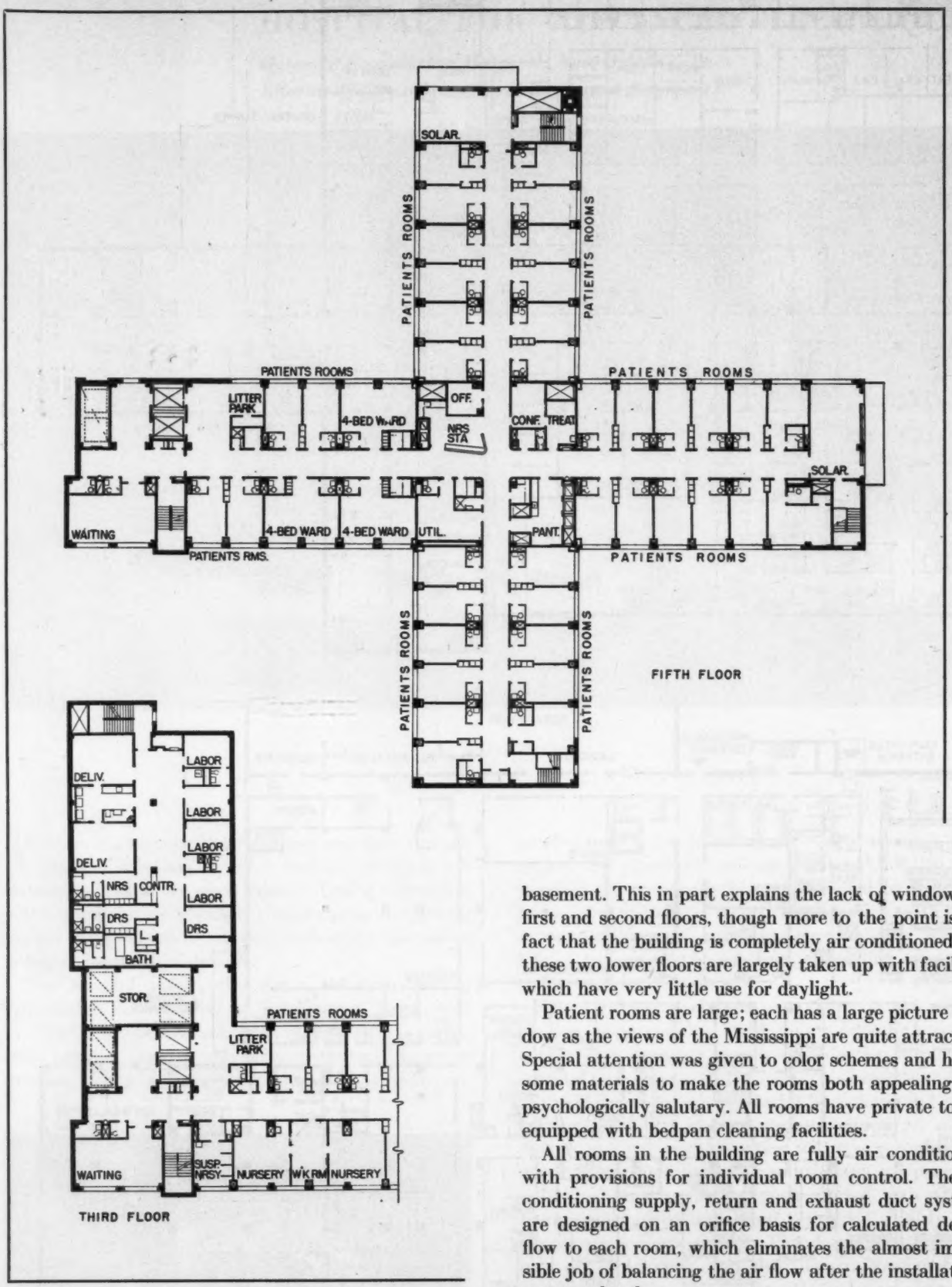
ANEST. OFF.
CONTROL
OFF.
BED PARK
INSTRUM.
OPER.
STER.
OPER.
OPERATING ROOMS
FELLOWS
INTERP.
V.W.G.
CONTR.
WAIT.
DRS.
DEEP THER.
SKULL PREP.
HEAD
EXAM.
RECOVERY
ANEST. EQ.
DICTATION
BED PARK
OPER.
CYSTO.
RAD.
LIGHT RM.
D'K RM.
WAIT.
DRESS.
PROJ.
PLATF.
SUB STER.
OPER.
SUB STER.
CYSTO.
RAD. & FLURO.
FLURO.
LECTURE HALL
OPER.
OPER.
X-RAY
SECOND FLOOR
SERVICE WING
EMPLOYEES ENTRANCE
AMBULANCE ENTRANCE
LAUNDRY
MECHANICAL EQ.
INCINERATOR
COL. M. LKS.
ANESTH.
MOR.
SHOPS
NITR. OX.
WH. W. LKS.
COL. W. & LKS.
LNG.
EMERG. OPER.
STOR.
AUTOPSY
PST. OFF.
WOMENS LOUNGE
ORDS.
MAIL RM.
SW. BD.
TEL. EQ.
H'SEK'PRS OFF.
HOUSEKEEPING
STORAGE
SERVICE-ENTRANCE
OFF.
PLASMA LAB.
DIET. OFF.
OFF.
PRE-PREP.
RECEIVING
WHEEL CHAIRS
STRETCH.
WAITING
OFF.
MEAT REF.
FRUIT & VEG. REF.
VEG. & SALAD PREP.
BLOOD LAB.
S. & LIN.
MEAT PREP.
DAIRY REF.
STORAGE
BLOOD TAKING
W'K
DRS. LOUNGE
PERS. OFF.
VAULT
EXEC. NURSING
COL. DINING
TRAY SET UP
COOKING
PUMP RM.
MIMEO. RM.
SUPT. NRS.
KITCHEN
LIBRARY
RECORDS
RECEPT.
ACCNTS.
CRED.
CHAPL.
DISH WASHING
CASHIER
PURCH. OFF.
ASST. SEC. DIR.
CAF. SERVICE
STOR.
BAKING
SCULLERY
ADM. OFF.
BUSINESS OFF.
OFF.
DIRECTOR
SECR.
FIRST FLOOR
0 5 10 20 30
LOBBY
SNACK SHOP
BOARD RM.
MAIN ENTRANCE
DINING RM.



basement. This in part explains the lack of windows on first and second floors, though more to the point is the fact that the building is completely air conditioned and these two lower floors are largely taken up with facilities which have very little use for daylight.

Patient rooms are large; each has a large picture window as the views of the Mississippi are quite attractive. Special attention was given to color schemes and handsome materials to make the rooms both appealing and psychologically salutary. All rooms have private toilets equipped with bedpan cleaning facilities.

All rooms in the building are fully air conditioned, with provisions for individual room control. The air conditioning supply, return and exhaust duct systems are designed on an orifice basis for calculated design flow to each room, which eliminates the almost impossible job of balancing the air flow after the installations are completed.

The architect is careful to explain that architectural effect was virtually ignored in the fenestration — "where glass is used it is used for light and vision, for the comfort of the patient and visitors, and not for architectural effect."

Solariums overlook Mississippi River

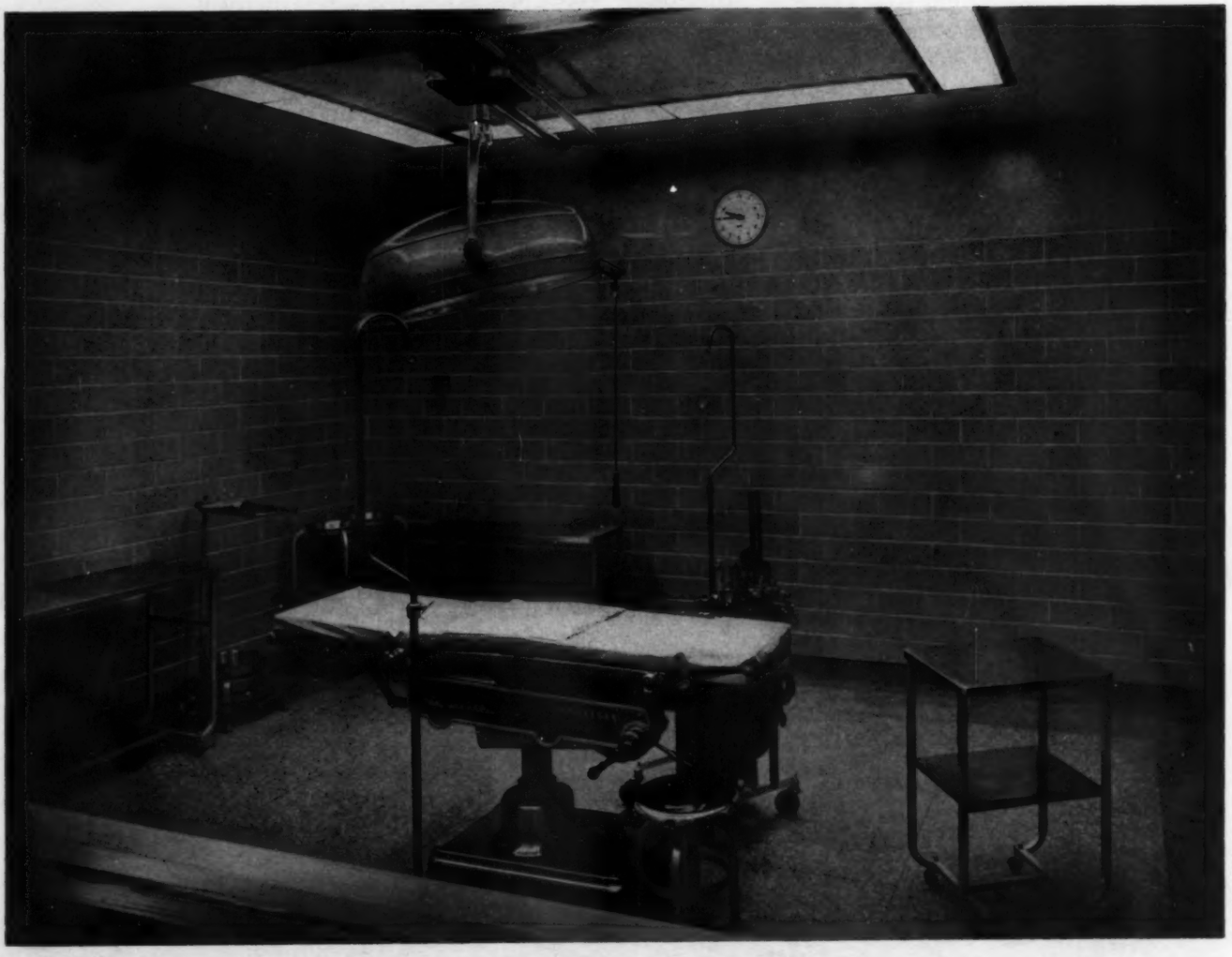
Pediatrics playroom, fourth floor

Frank Lotz Miller

Typical nurses' station

Nurses' utility room

Left, above: typical single room and, next, typical four-bed ward. Patient rooms have large picture windows. Color schemes in patient rooms were carefully studied, with delicate tones in walls and drapes. Dining room and kitchen are on first floor, there being no basement story because of water conditions. Opposite page, above: post-operative recovery room and anesthesia induction booths in surgical suite, second floor. Opposite page, below: one of the eight major operating rooms



Frank Lotz Miller

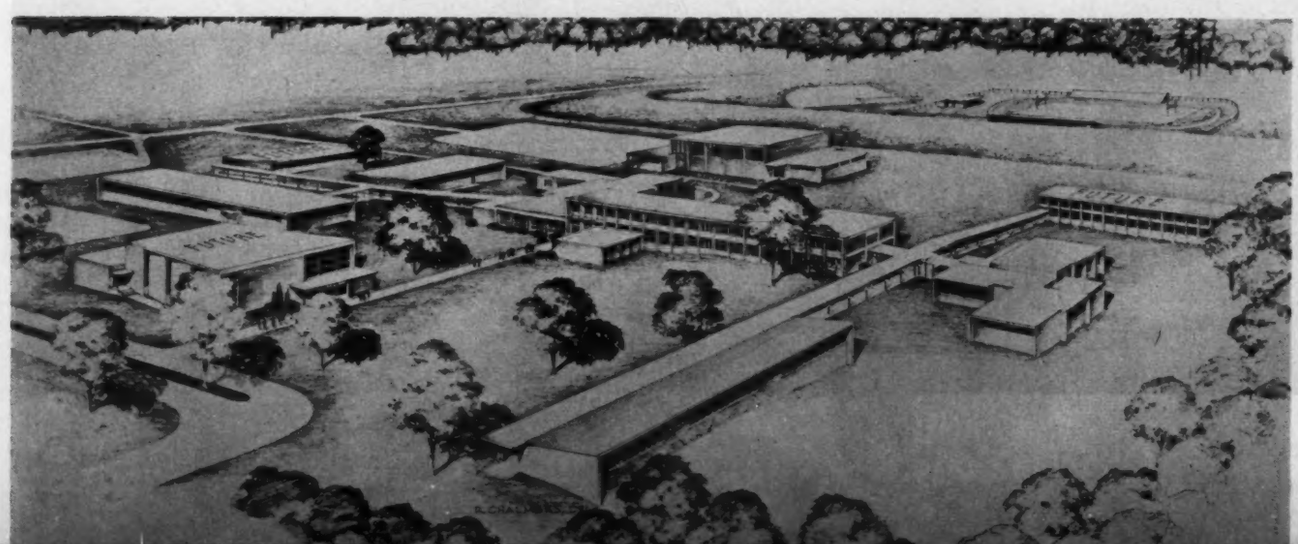
Joseph W. Molitor

WEST CHARLOTTE SENIOR HIGH

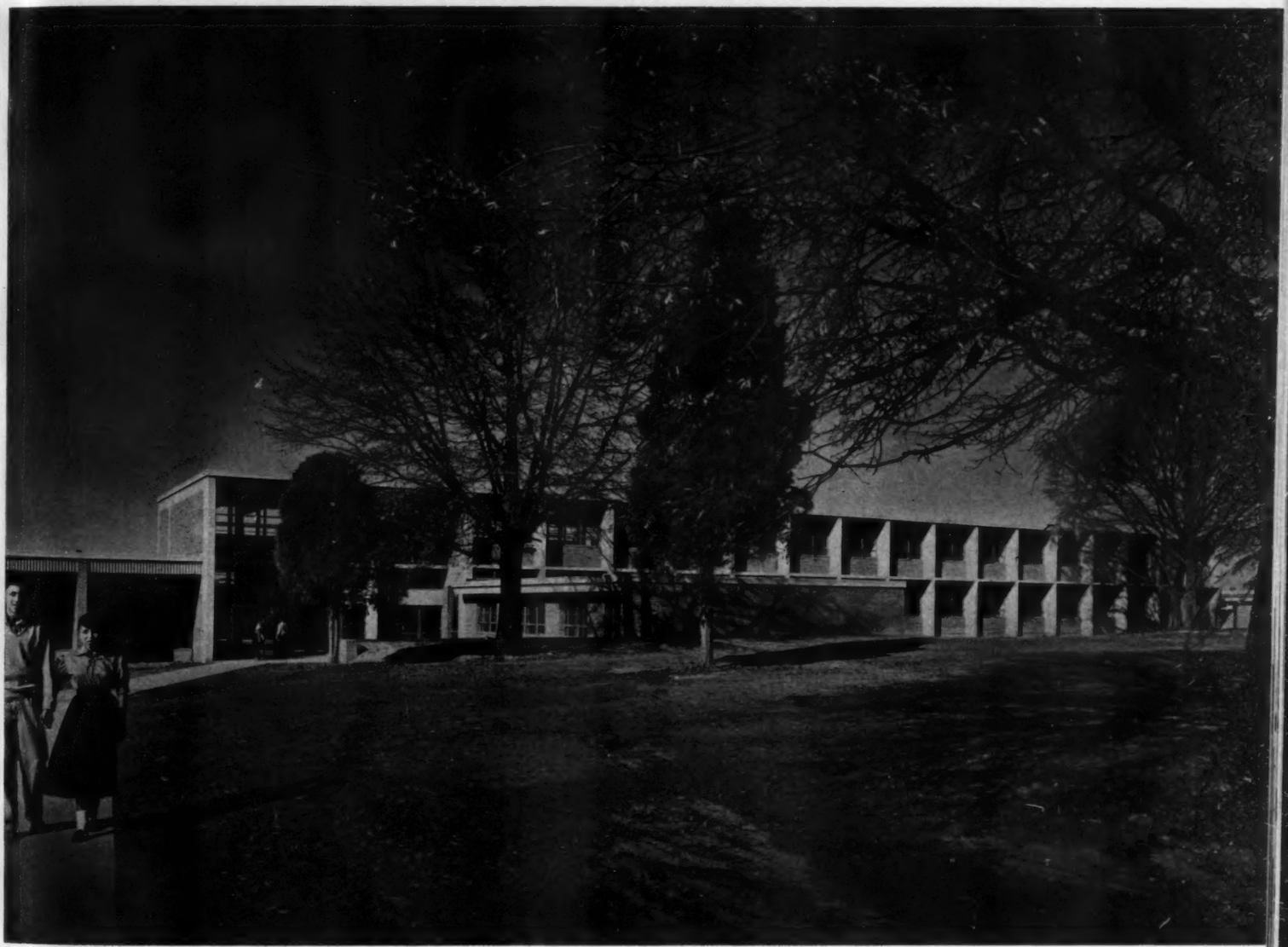
THE CITY OF CHARLOTTE, N. C., has long had a comprehensive plan for developing the many school plants which house its educational system. The plan is based on population studies, on recognizable trends of development, foreseeable population shifts, etc. It is a tribute to the reliability of these forecasts that, although some of its schools have anticipated growth, in none have facilities yet proved in excess of the need. Of course residential increase is stimulated by building a new school. The responsibilities which careful planning entails — for directing urban growth, among others — as well as the advantages accruing (economical site acquisition, opportunities to design buildings in comparative calm rather than under intense pressure, etc.) are apparent.

It is natural, then, that ARCHITECTURAL RECORD should have presented in March, 1953, the conclusions reached by a group of educators and architects who had met two months previously at Charlotte's Myers Park High. Last year we presented the Double Oaks Elementary School, winner of an A.I.A. Honor Award and of a *School Executive* top award. On these pages appears the city's newest prize-winner, the West Charlotte Senior High School, which received a first award in the 1955 *School Executive* competition, and an A.I.A. award of merit in its own state. Each has been designed by a different architect, which demonstrates the policy of Charlotte's school authorities in spreading the work among the capable local offices. Each school plant is different in response to the local requirements of neighborhood, site and curriculum variations.

The west side of the city had needed a school for some time. When a local developer decided to build 2800 family units in that section, the new West Charlotte High became an immediate necessity. A fifty-acre site was selected, a choice one of high elevation, with several fine old oak trees and an adjacent wooded tract dedicated to park purposes. The educational program provides rich opportunities not only in the academic field but also in the vocational and technical. There is a strong adult program, and the school is already serving as a community cultural, recreational and social center. It is expected to be a vital influence in elevating standards of home construction and maintenance in this new area. The school campus is consequently pleasantly inspirational; its central Academic Building, two stories high, achieves a dignified importance which enhances community pride.



SCHOOL: PREPLANNING PRODUCES RESULTS



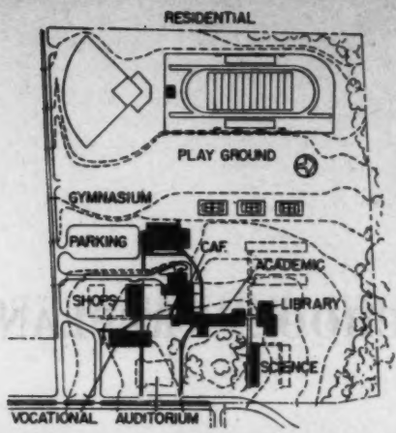
Graves & Toy, Architects

Engelhardt, Engelhardt & Leggett, Educational Consultants

Mechanical Engineers, Inc., Heating Engineers

Alexander Springs, Electrical Consultant

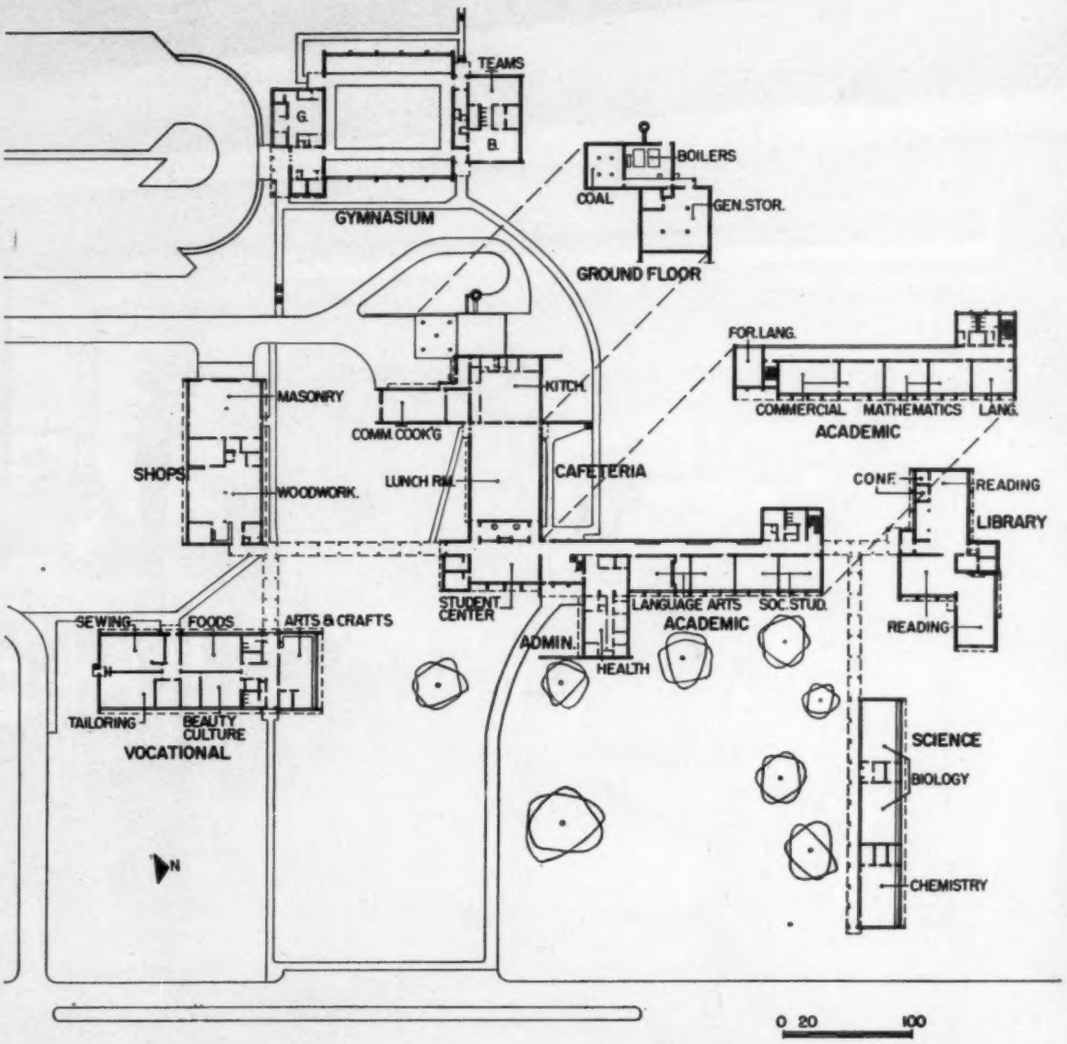
CHARLOTTE, N. C., HIGH SCHOOL



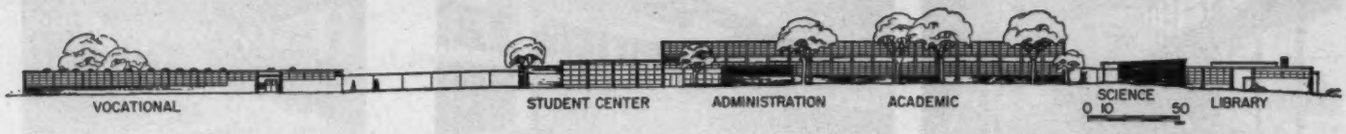
Joseph W. Molitor

Student Center (photo above) is more than a focal point for student life; community pride in the school is great, and a community organization is undertaking the job of furnishing this room appropriately. Photos at right: Science Building has covered exterior corridor leading to Academic Building. Library (facing page) has three distinct, large areas for reading and research, two small conference rooms where small groups can privately discuss educational projects, etc.

Indoor and outdoor circulation take into account inevitable expansion as well as present needs. As the school population grows, more academic and science classroom space can be added in buildings surrounding the Library, which is a research and resources center for classroom work and projects. The future auditorium (see plot plan at top of facing page) is to be located close to the arts and crafts shop in the Vocational Building; the beauty culture and tailoring suites are also convenient. Scenery, costumes and make-up for stage work in the expected auditorium can thus be closely correlated with vocational studies. Photos at top of page: corridor, Academic Building, will have lockers grouped at high portions of spandrel walls; low sills between permit view of the pleasant site, relieve monotony of long corridor, admit additional light to classrooms through clerestories in partition. Right, outdoor corridor



CHARLOTTE, N. C., HIGH SCHOOL



Joseph W. Molitor

Classrooms in concrete-framed Academic Building (above) have window walls to the east, receive additional natural light through clerestories on the west, where corridors act as sun shades. There are ten classrooms in this building; it is notable that the Shop and Vocational Buildings also have a classroom each. Thus twelve of the twenty-five teaching stations are in classrooms, the remainder in shops, laboratories, and specialized vocational rooms

While the initial student population of West Charlotte High School was expected to be 600 pupils (grades 10, 11, 12), population studies indicated an increase averaging 200 pupils per year, up to an ultimate 1500 to 2000. It seemed appropriate to adopt a cumulative building program, which the open

Chemistry-Physics Lab

campus plan facilitates. Some of the present areas will meet the needs of the ultimate school plant; others will be supplemented by construction of new units or additions. Examples are the projected classroom and auditorium building (noted on preceding pages) and enlargement of the Cafeteria Building by adding a lunch room wing to the north of the present kitchen, increasing the kitchen by incorporating in it an enlarged area where commercial cooking is now taught, and providing new adjoining space for this subject.

Though the school plant is developed as a campus it is a relatively compact disposition of departmentalized units, each — as we have seen — susceptible of expansion, to permit maximum flexibility and variety in growth. By negotiation with the developer of surrounding residential property, the street pattern was coordinated to eliminate roadways or drives through the site. The street center was located on the property line, so the school's cost for paving was halved, more usable land was re-

Biology Lab

served for the school, the amount of service drive was reduced, and neighborhood amenity was increased since surrounding residences will face the pleasant school compound. This is expected, here as it has in other comparable situations, to raise the quality of the adjacent houses.

There is about equal emphasis in the curriculum upon preparation for continuing education and vocational and technical training; this is truly a comprehensive high school program. Vocational subjects tie closely to community needs: there is a strong local tradition of high quality masonry construction; carpenters are in great demand; commercial cooks have virtually been guaranteed work in Charlotte's hotels and restaurants; the same need exists for tailors and beauticians; Charlotte is noted as a distribution center for products manufactured elsewhere.

The buildings are so designed and located on the hillside that, at reasona-

Arts and Crafts

Beauty Culture

ble cost — and without bulldozing into anonymity the agreeable terrain — floors are at or near the same level. Minor changes in elevation are made by comfortable ramps. The Gymnasium and Shop, now under construction, are expected to be completed this spring. Future building construction can tie economically into services as planned extensions of facilities now installed.

The two-story Academic Building is of "fireproof" construction, with a reinforced concrete frame that cantilevers to support the corridor floor and roof. The bays are uniform. The gymnasium roof construction is carried on post-tensioned precast concrete girders and

Tailoring

columns. The one-story buildings have steel framing, steel joists and poured gypsum roof deck on exposed fiber board forms carried on bulb tees. Exterior walls are concrete block with brick facing. Floor slabs are concrete on grade, radiant heated. Interior partitions are concrete block generally; ceilings, attached to steel joists or suspended, are acoustic plaster. Walls in toilets and kitchens are structural facing tile; finish floors, asphalt tile generally, terrazzo in toilets and corridors, quarry tile in kitchens and service rooms.

Building Costs

Academic (Language Arts), Cafeteria, Vocational, Science and Library buildings now completed:

Area	77,865 sq ft
Cubage	874,620 cu ft
Total Cost*	$665,622.00
Cost per sq ft*	$8.54
Cost per cu ft*	$ .76

* Including approximately 840 ft water and sewer main to city connection as well as building services on the site; not including kitchen equipment ($16,737), science laboratory equipment ($25,491).

Gymnasium and Shop buildings now under construction:

Area	24,493 sq ft
Cubage	449,236 cu ft
Total Cost*	$216,078.00
Cost per sq ft*	$8.82
Cost per cu ft*	$ .48

* Including lockers and outside utilities but not bleachers.

In addition to above items, grading, storm drainage, paving, flood-lighting, fencing, 3000-seat bleachers and concession stand have been provided for approximately $80,000.00.

Cafeteria, Kitchens; boiler room below

John Soyle, Jr.

PROPOSED TOURIST HOTEL AT THE

Burton Holmes

H. Guillen M.

HIGH IN THE PERUVIAN ANDES, at 10,300 ft., lie the ruins of Machu Picchu, fabled "city in the sky." Here was the shrine and last home of the ancient Inca rulers, nobles, priests, and their chosen handmaidens — the vestal virgins of the sun. Never found by the invading conquistadores in 1532, the city was lost for three centuries, discovered in 1911. The site is 70 miles from Cuzco, now a city of 53,000; in the 15th century the capital of the powerful Inca empire.

The awesome setting looks down 2,000 ft into the canyon of the Urubamba River and is guarded by twin peaks towering above it. Intensive agriculture — a highly developed Inca skill — was served by walled terraces linked by stairs, the longest serving as the city's main thoroughfare. Building walls were of granite ashlar, beautifully fitted without mortar and with joints a knife blade cannot penetrate. On a rise was the "intihuatana" — temple to the sun (bottom left).

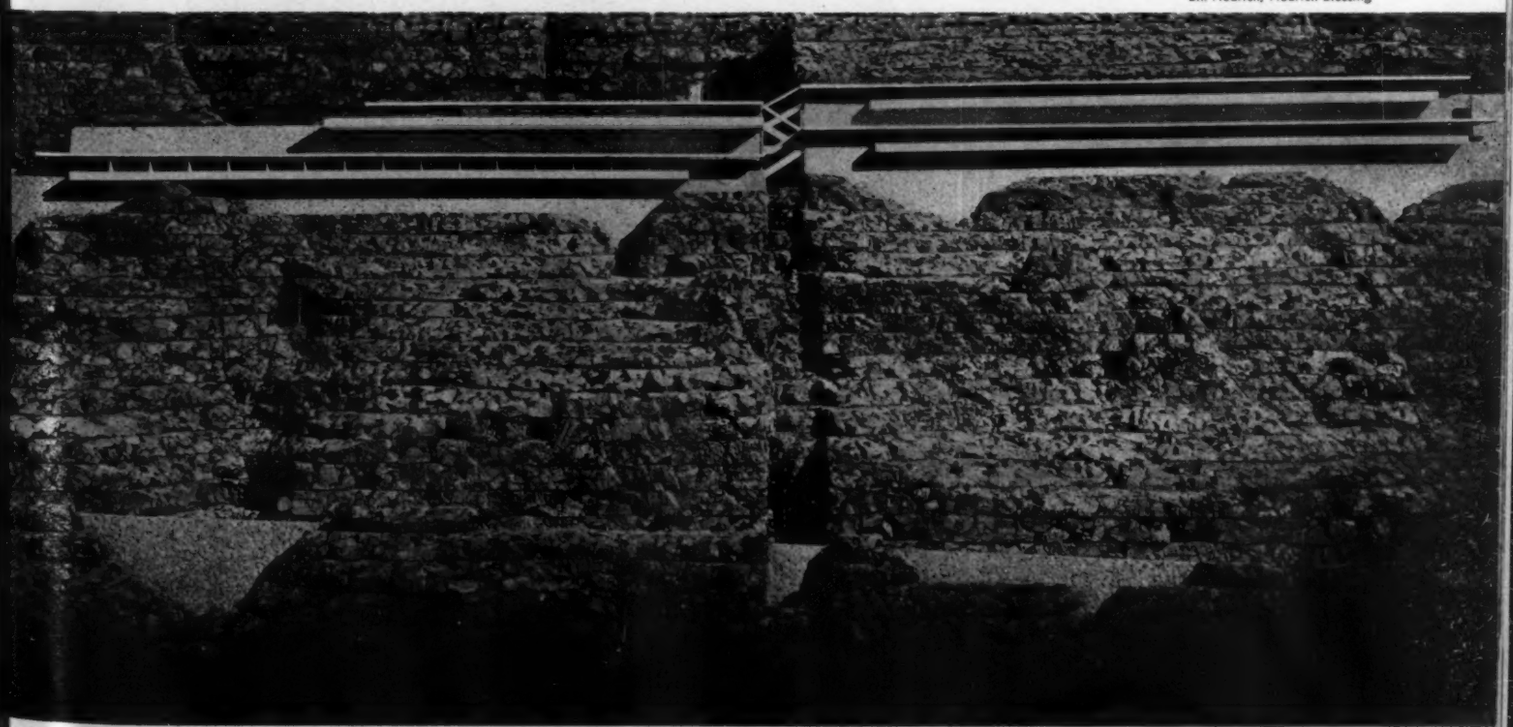
The constantly increasing number of visitors makes the present small lodge (top left) inadequate. The proposed hotel would be built higher — by two "camel backs" — up the mountainside. The path to the ruins would be downhill and provide a favorable entering view.

Alpaca. Inca. Silver, 9 1/16 in. high
Collection: American Museum of Natural History

ANCIENT CITY AND SHRINE OF THE INCA

Project for a Hotel at Machu Picchu, Peru
Schweikher and Elting, Architects

Bill Hedrich, Hedrich-Blessing



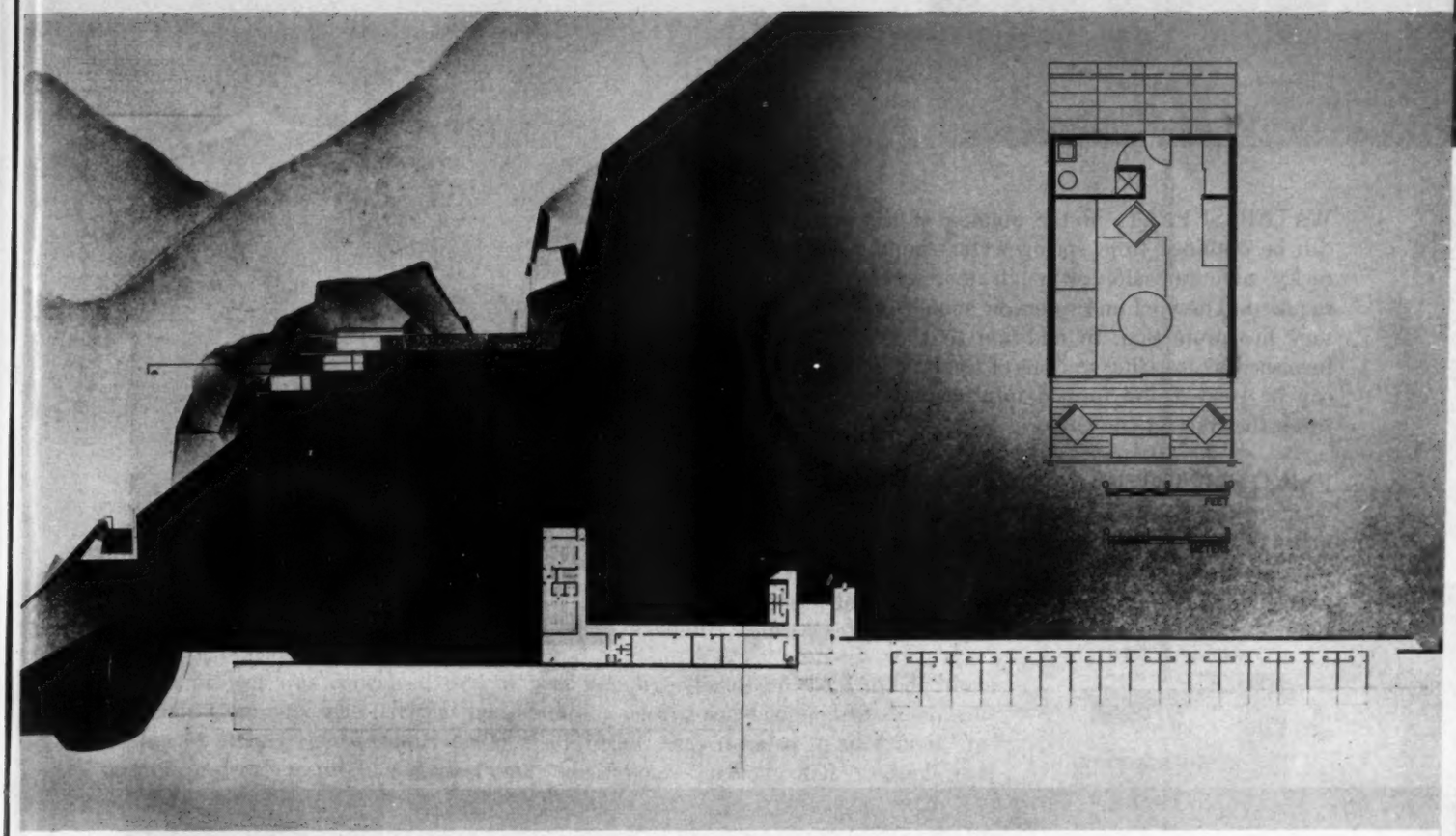
THE SITE PLAN, below, shows the winding road up the mountain from the rail-bus station (bottom). The new hotel is positioned to exploit the magnificent view of the Urubamba Valley and the mountains beyond. A trail leads uphill to a stable, riding ring, corral, and servants' quarters (left of hotel). A second trail to the nearby ruins ends at a gatehouse museum (right of hotel) — a restoration of one or several Inca dwellings. From this point, one gains an impressive view of the ancient city from above.

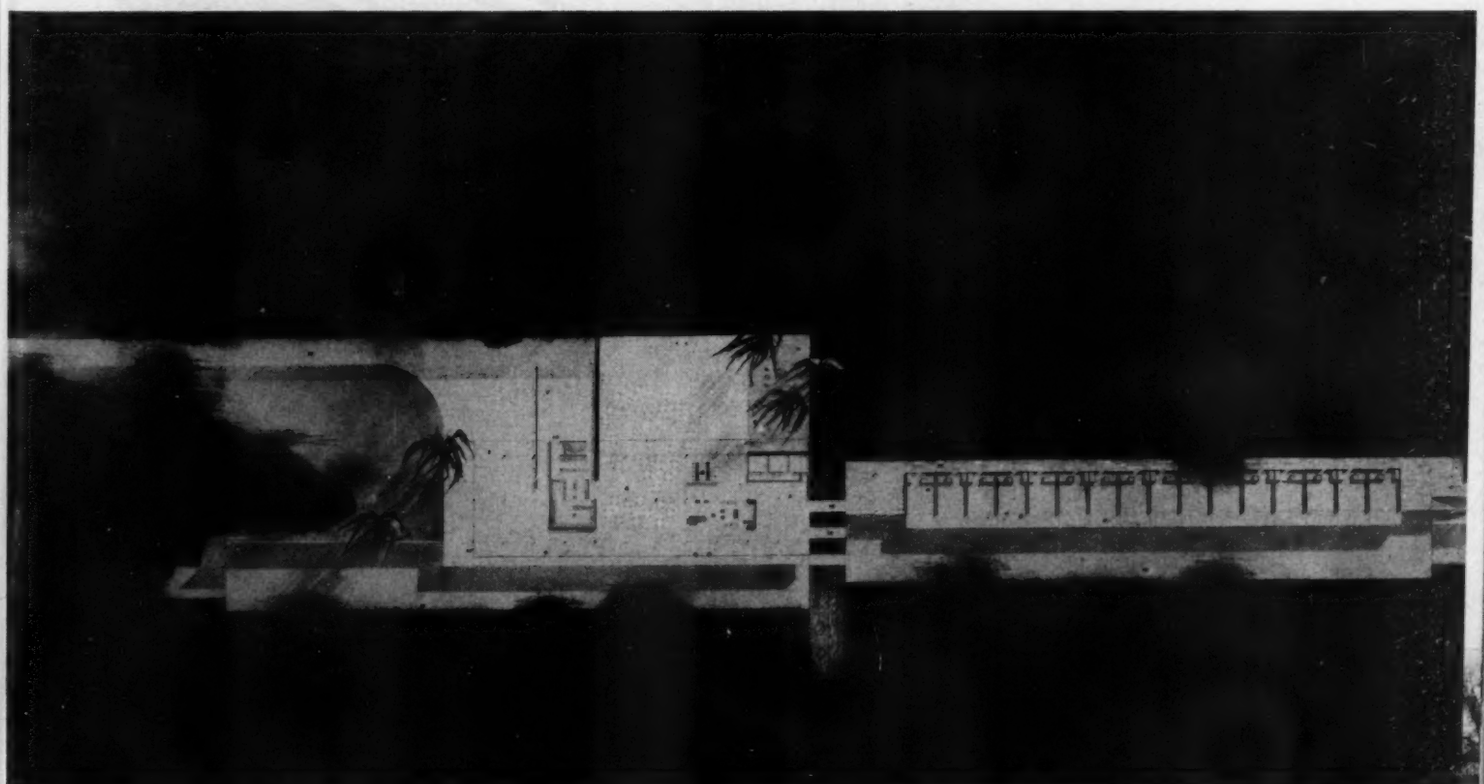
THE CONCEPT contemplates cutting levels into the mountainside, then using material obtained for stone retaining walls and backfill. This method, well known to engineers, was probably used by the Incas for their terraces. Reinforced concrete slabs would be laid on the cut and fill, cantilevering over the walls to form balconies. Only four basic materials would be transported to the site; cement, reinforcing steel, wood, and glass. Piers and walls of mountain stone will support floor slabs and wood roofs. Interior partitions and cabinets will be wood; glass will be used sparingly; only where shelter from wind, rain, or sudden temperature change demands.

THE PLAN shows the approach, bottom right, through a courtyard leading to a covered terrace overlooking the view and then to the lobby. From the lobby, access is by stair to the guest rooms above or below. A large fireplace separates dining and lounge areas from lobby — the bar is between lounge and terrace. The kitchen has direct access to the service court and to a service area below — see top plan. Dining may be indoors or in the garden overlooking the pool. The pool will be fed by directing several springs into a stream down the mountain; may also be used for swimming.

The scheme contains 48 guest rooms, each with private bath and balcony overlooking the view. The three guest floors are at staggered levels, thus allowing for future additions above or below.

MACHU PICCHU HOTEL





MACHU PICCHU HOTEL

WATER SUPPLY, in the opinion of the architects, can be obtained from spring water running down the rocky mountainside, although a reservoir may be required. The pool and reservoir should provide necessary fire protection, in addition to the safety factor furnished by isolating sections of the building. Sewerage can be treated and formed into a stream directed to reach the river in the valley below.

ELECTRIC POWER could be generated either by water or diesel motor, the latter cheaper to furnish and maintain. A 200 KW generating station would fill the estimated need for both lighting and heating. In the ideal climate of Machu Picchu, individual electric room heaters would provide any needed tempering.

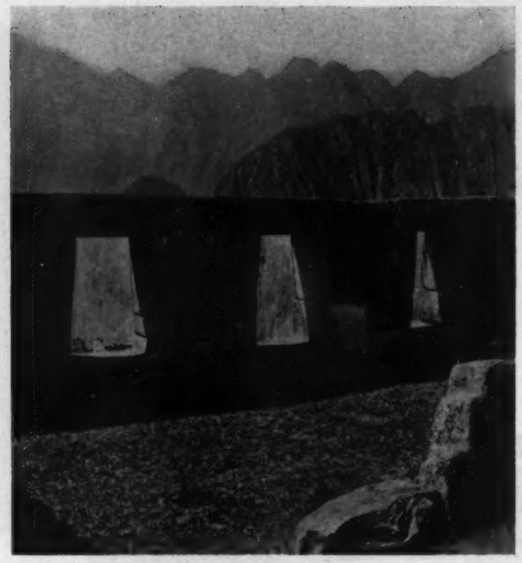
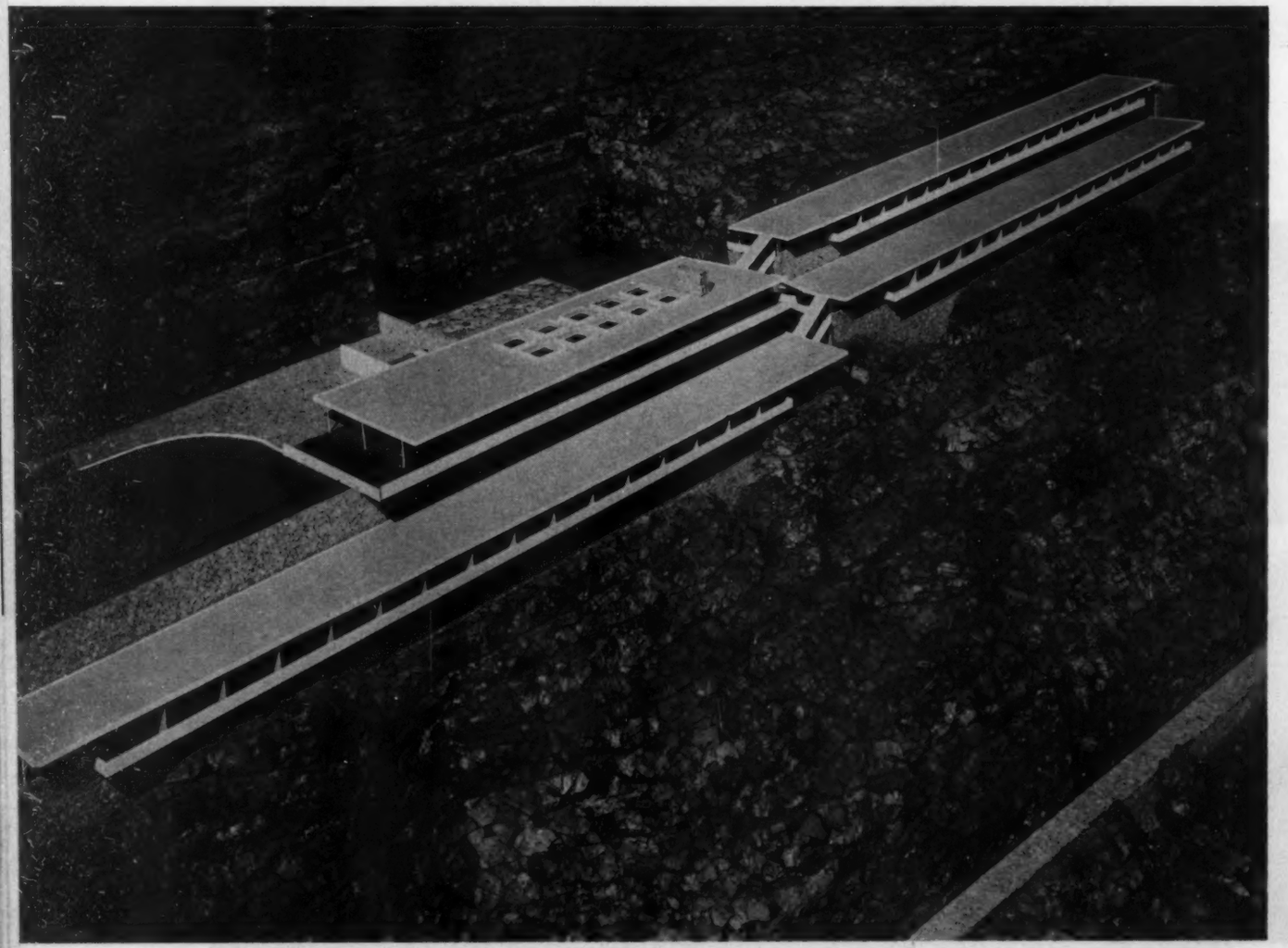


Photo Courtesy Museum of Modern Art

Bill Hedrich; Hedrich-Blessing



HOUSES THAT RESEARCH BUILT

Six architect-builder teams show that materials and methods new to residential construction can be used in small, low-cost houses. Here are two of them

SOME NEW THINKING — new, that is, in the field of low-cost housebuilding — has evolved from a research village in Barrington, Ill. Six selected architects, asked to contribute some new design and construction ideas for the project homebuilder, have stepped outside the familiar bounds of residential construction and adopted materials and methods commonly used in industrial and commercial building. The results of their experiments, which indicate that there is no inflexible formula for small, low-cost houses, have attracted widespread interest and much enthusiastic comment. The village reflects the ingenuity of the six architects and the merit of the research itself.

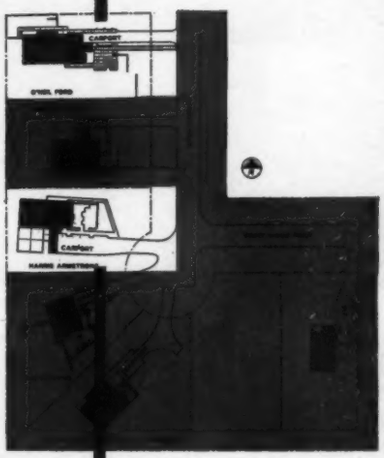
The project was conceived over a year ago by officials of the United States Gypsum Company who felt that housebuilding needed some competitive merchandising to attract the consumer dollar. As a result, they decided to sponsor a "research project" to produce six low-cost "idea" houses, which could be duplicated in part rather than in their entirety. In essence, they were to serve as pilot houses of multiple project developments. U.S.G. stressed their basic interest in the promotion of better residential construction.

As one of the first steps in developing the "United States Gypsum Research Village," U.S.G. set up an architectural advisory board composed of L. Morgan Yost, FAIA, Kenilworth, Ill.; John Root, FAIA, of Holabird & Root & Burgee, Chicago; and Richard Bennett, FAIA, of Loebl, Schlossman & Bennett, Chicago. The board selected six architects from a field of 36 who accepted out of 40 who were approached. An NAHB builder advisory panel appointed six "teammate" builders. It was felt that teams representing every region of the country would show how design need not be a barrier to construction in one climate area. Morgan Yost acted as supervising architect at the site, and the actual building was done by the Maxon Construction Company, Barrington. The teams were given free license to use the materials of all manufacturers, then were presented with these objectives:

1. To contribute new design and construction ideas, particularly for the project homebuilder.
2. To create new uses for building materials.
3. To create more livability, comfort, safety and value for the homeowner.

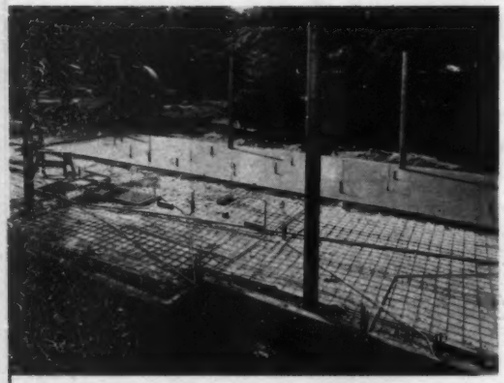
That the objectives have been achieved is apparent in the combination of comfort and attractiveness with such seemingly incompatible factors as steel and exposed concrete. Even in comparatively small houses, as these are, there is a definite feeling of spaciousness and easy flow.

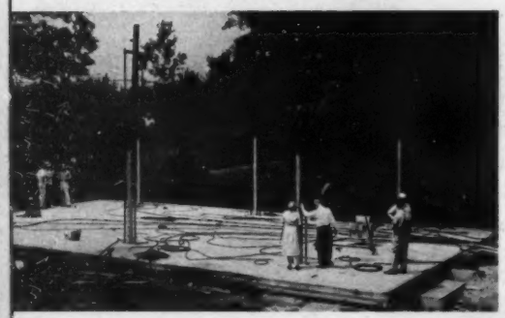
The big question is: Will the prospective homeowner be receptive? The sponsors, extremely happy with the results, think so. The architects, professionally self-critical but on the whole well satisfied, think so. And apparently the NAHB thinks so. Its new president, Earl Smith (when he was chairman of the technical committee), said, "These are the kinds of houses we will be building ten years from now."



LIFT-SLAB ROOF FLOATS ON SIX COLUMN SUPPORTS

Designing Architect: O'Neil Ford, San Antonio, Texas
Teammate Builder: Frank Robertson, San Antonio, Texas



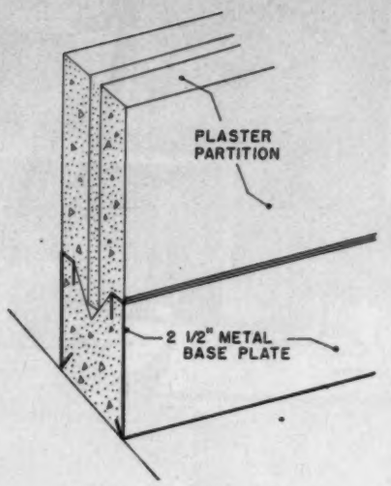


LIFT-SLAB CONSTRUCTION is the most revolutionary feature of this 1624-sq-ft house. Although an established structural system for commercial buildings in many sections of the country, and even in some of Mr. Ford's high-priced Texas homes, it has never before been attempted in low-cost house construction. Even though this house proves that the roof-slab method is uneconomical for one house, results indicate that it would be economical for 10 or more houses. It is conceivable that in the future one control system may lift the roofs of several houses simultaneously.

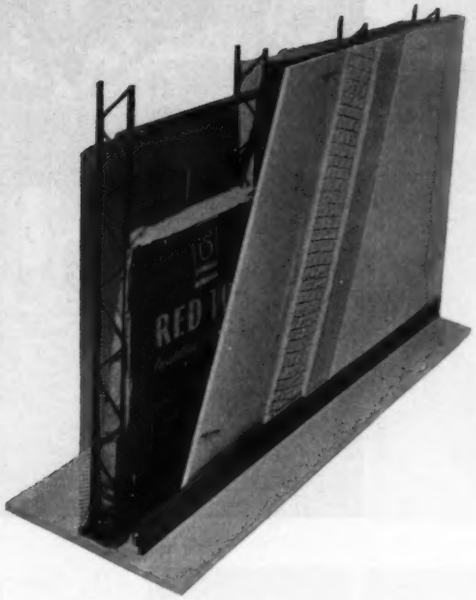
After the roof was raised to its full height, it was locked permanently in place by steel collars welded to the columns. Since the columns carry the full weight of the roof, all exterior walls and interior partitions are non-load-bearing, making possible another structural feature previously used mostly in industrial and commercial construction — open-web steel studs. They are easily installed, do not shrink or warp, offer complete freedom for mechanical installations and compare favorably with wood studs in price per lineal foot.

The combination of concrete, steel, plaster and stucco adds up to a house that is almost incombustible. Glass curtain walls on the south side, and a glass strip under the roof overhang on the north side, add to the brightness and openness of the house. These large glass areas can be used without danger of large temperature differential from floor to ceiling because diffusers located in the floor about 10 in. from the outside walls blanket them with warm air in the winter and cool air in the summer. One width of acoustical tile along the perimeter of the ceiling deadens some of the sound, which travels toward the outside walls and then up to the ceiling, and also adds to the decorative effect of the house.

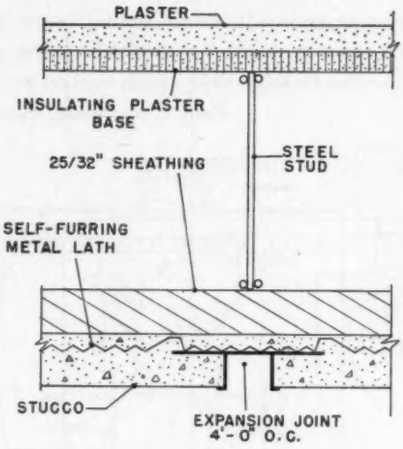
Literally "raising the roof," six hydraulic jacks lift the 9-in.-thick, 35-ton concrete slab into place. Progress photos above show air ducts laid in gravel fill, steel columns placed in concrete floor slab and hydraulic equipment installed, one on each column. After the concrete was cured to 3000 lb in approximately 21 days, and built-up asphalt roofing applied over rigid roof insulation, it was raised evenly to a height of 9½ ft in less than 3 hr. Vinyl tile flooring covers the concrete floor slab throughout the house



Interior Wall Construction

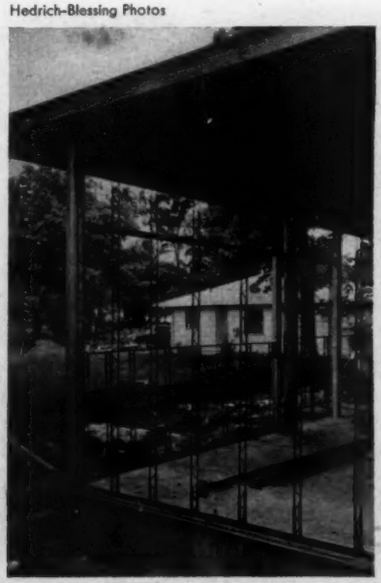


Exterior Wall Construction



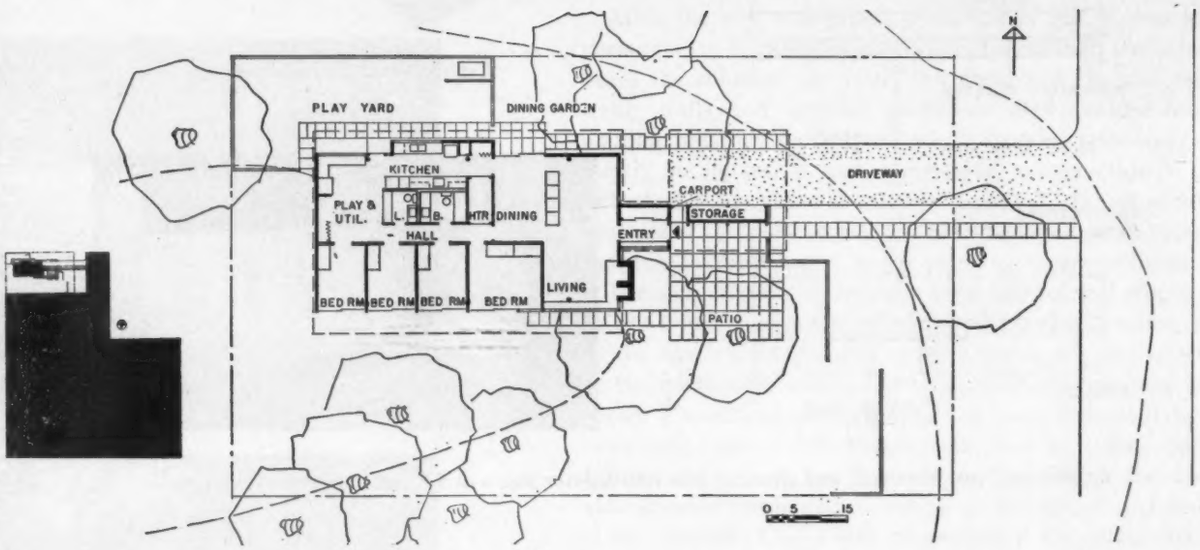
Expansion joint, functional and pleasing, cuts into exterior stucco at 4-ft intervals to interrupt cracks

Hedrich-Blessing Photos



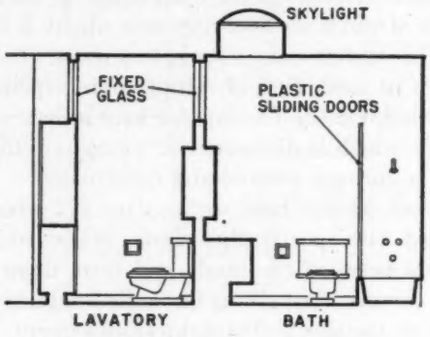
Open-web steel studs, spaced approximately 16 in. o.c., snap into "shoes" clipped onto steel floor and ceiling runners, leave an open core for installation of plumbing and conduit. Shoes offset unevenness in floor elevation. Clips attach metal lath to studs

Hedrich-Blessing Photos



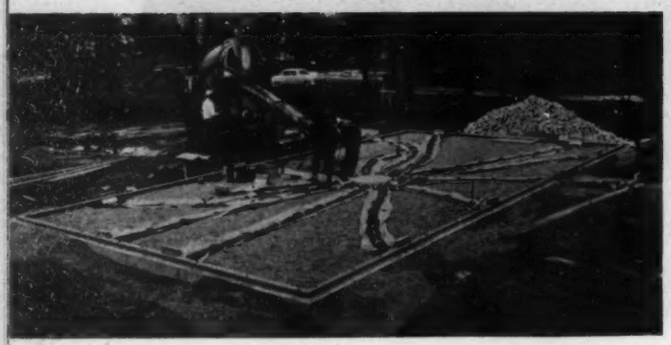
Storage area separates the steel-decking-covered carport from the outside patio. The patio can be reached through a door in the main entry or through sliding glass doors from the living room. A play yard is located on the other side of the house so that children can go in and out through the activity room

Living room is divided into two parts: "fireplace focus" (below) and "TV focus" (above). Catch-all cabinet separates living and dining areas, with table and drawer space on both sides. Daylight from activity room enters adjacent bathrooms and lavatory through glass areas in walls



Small bedrooms are adequate for children if they have an activity room in which there is also plenty of storage space. Master bedroom acts as a buffer between living area and the three children's bedrooms and activity room. Mother can watch children from kitchen while they are in the activity room or the play yard outside

TERRACES AND ROOF DOUBLE SIZE OF SMALL HOUSE



Foundation is the same as in the Ford house, concrete slab over crushed stone, with warm air ducts embedded in the slab. Furnace location is at edge of slab, so warm air has to be shot into center of slab through pipe from furnace and then disbursed through pipes leading to outlets at perimeter of slab. Location of furnace, outside bathroom and lavatory, permits access from outside. Vinyl tile and cork tile are applied directly over the concrete floor slab throughout the house

THE SMALLEST of the six houses provides three bedrooms in only 1178 sq ft of space. The conventional wood framing is extended beyond the limits of the house itself to semi-enclose a patio which appears to enlarge the living room considerably.

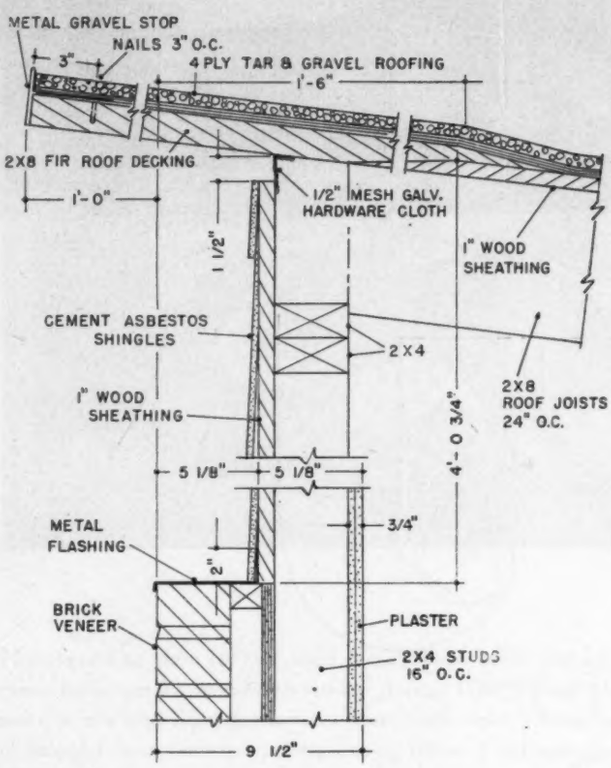
The ceiling of exposed wood decking and cross beams slopes upward toward the south side of the living room and then down again over the carport, almost doubling the apparent size of the house. The effect of bringing the outdoors into the house by using natural materials and colors in the living room is contrasted with one exposed steel I beam in the middle of the ceiling. Built-up asphalt roofing over rigid roof insulation is applied over the wood decking.

The large glass areas facing on the patio are kept warm and moisture-free, as in the Ford house, by means of warm blankets of air from floor registers about 8 in. from the walls. This system cuts costs in two ways: (1) Single-plate glass can be used, thus obviating more expensive double-glazed windows. (2) The furnace load is decreased because warm air which is dissipated in rooms is returned to the top of the furnace, filtered and recirculated.

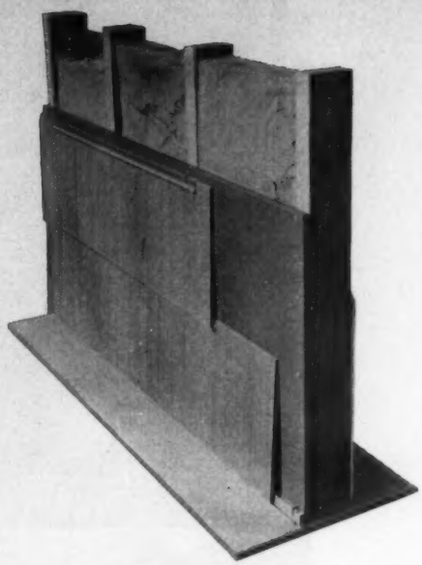
Dry-wall plaster base sections on 2x4 wood studs are connected with special clips, shown below, which hold the lath ends between the studs and float them away from interior corners, thus giving the walls complete rigidity and cushioning the shock of structural movement.

Designing Architect: Harris Armstrong, Kirkwood, Missouri

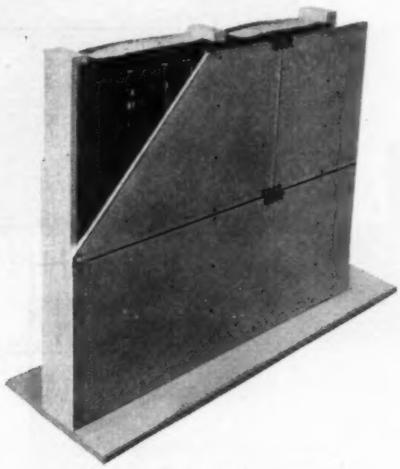
Teammate Builder: Donald H. Drummond, Kansas City, Missouri



Roof and Outside Wall, South



Exterior Wall Construction, above Brick Veneer

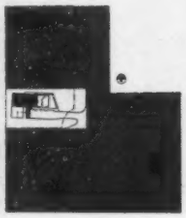


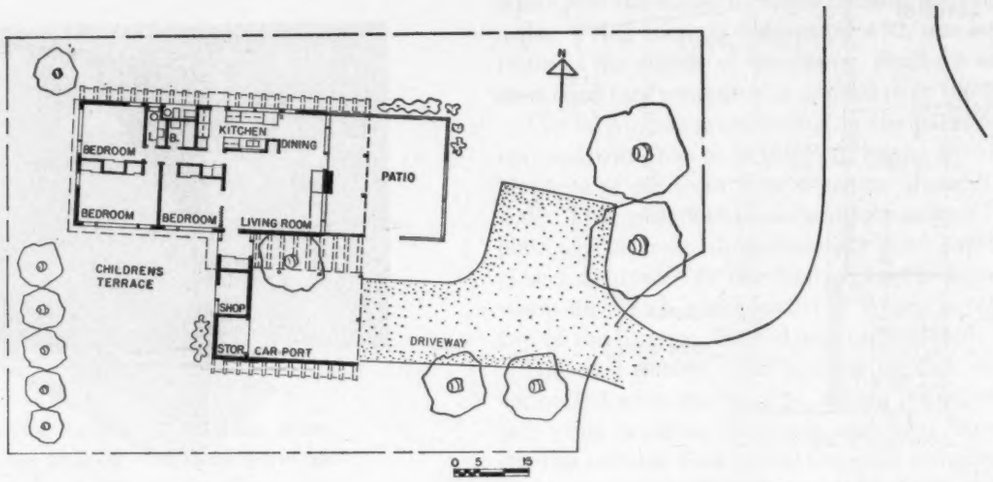
Interior Wall Construction

Hedrich-Blessing Photos

A 10-in. brick cavity wall, filled with insulating wool, accents outside-inside motif of living room. Lower portion of other exterior walls are brick veneer. Upper portion, shown top of page, is faced with striated, ceramic-finished, asbestos cement siding

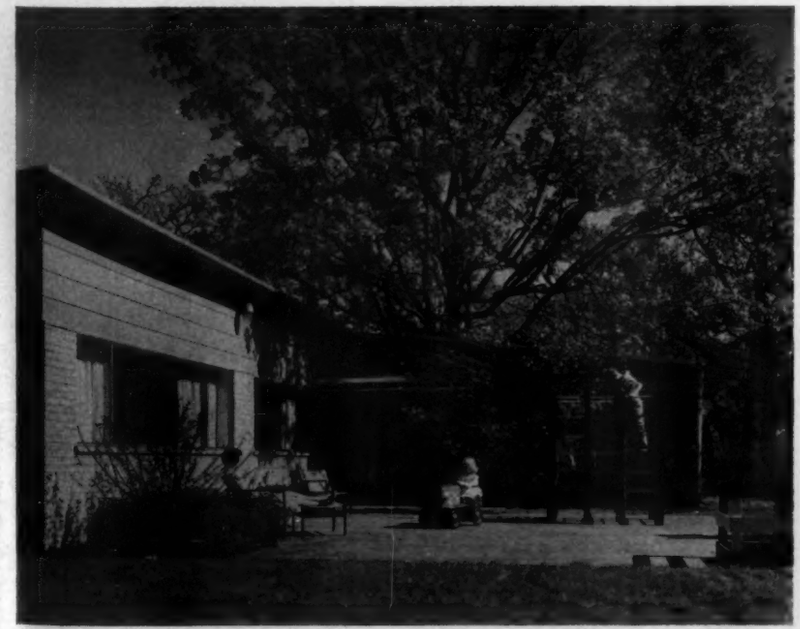
Hedrich-Blessing Photos





Outdoor living areas add to the illusion of spaciousness. An adult terrace, hidden from street by stationary vertical wood louvers and roll-up bamboo blinds, adjoins living room. A beautiful old oak tree adds a dramatic touch to trellis-covered passageway leading to main entrance between house and carport

Floor-to-ceiling glass curtain walls bring terrace right into living room. Inside garden accentuates outdoor feeling. Light filters through oak tree and trellis into living room above brick walls. Living room is enlarged even more by opening folding doors of bedroom-study. Sliding window opens kitchen to living room



A children's terrace on the other side of the house is separated from the double carport by a storage area and shop. This area keeps children away from the street and from the adult living areas

BUILDING TYPES STUDY NUMBER **221**

OFFICE BUILDINGS

FENESTRATION

WHEN THE ARCHITECT with a commission for a new office building arrives at a decision on fenestration he has brought into focus most of the problems of design. Whether he starts with fenestration — certainly a temptation — or with any of a half dozen major design considerations, the window will be a pivotal element.

The arrangement and proportioning of windows will certainly be a determinant in esthetic design. Fenestration will also largely determine the flexibility of space near the windows, perhaps throughout the building; this fact alone may establish the rental value of the space for the life of the building. Fenestration may also set the pattern for the structure or for the air conditioning, for the skin of the building, or for the comfort and composure of the people who will spend so many hours there.

Fenestration thus becomes the theme of this Building Types Study, prepared with the assistance of Max Abramovitz, of Harrison & Abramovitz, acting as mentor and master of ceremonies, though some other architects have contributed their own notes on their own decisions as to fenestration. Few architectural firms have done so many large office buildings, in so many different locations, for so many varied clients, as Harrison & Abramovitz, beginning back with Rockefeller Center (in association with others), on through U N, Alcoa, U. S. Steel, and others. If their buildings seem to exhibit many differences in end result, both partners would cheerfully acknowledge the truth of that observation. They might, in fact, make rather a point of it. Variety, then, becomes part of the fenestration theme of this study. If there is any dogma to be preached in the ensuing pages it will be merely that there is no one window solution that suits all conditions of function, climate, location, notions of clients, or personal vocabulary of architectural genius.

U. S. Embassy Building
Rio de Janeiro, Brazil
Harrison & Abramovitz, Architects

If there is any trend visible today, it will be the broad effort to reexamine the purpose of the office building window in relation to other factors in design, then to find esthetic inspiration in the functional criteria, rather than the other way 'round. In this laudable resolution, the modern clichés will have to hold their acceptance on merit. Floor-to-ceiling glass or strip windows or glass spandrels will win, if they win, on demonstrable values in the given instance. The Rockefeller Center fenestration, the classic example of provision for economical space division which seems to hover over all office building design, will hold sway to whatever extent it fits the individual circumstances.

This matter of window modules and placement of partitions is thoroughly analyzed in this study; other factors are touched on rather more lightly, as they contribute in some instances to fenestration decisions.

The analysis tends to demonstrate that the skyscraper, America's distinctive contribution to architecture, is not now, if it ever was, a standardized package. For all of the inventiveness already poured into its progress, there is room still for a great deal of cleverness, to fit that inventiveness to the changing needs of big business and its big and little people.

THE DISCIPLINES OF FENESTRATION

A Study Prepared with the Assistance of Max Abramovitz, Harrison & Abramovitz, Architects

THE AMERICAN OFFICE BUILDING reached a high state of development back in the Twenties, at least from a functional point of view. Perhaps it is more accurate to say from a commercial point of view. In this era the office building was thoroughly analyzed as an investment. Management and rental of multi-tenancy buildings was an established science, and building skyscrapers for rental was big business. All this might be said to have culminated in the building of Rockefeller Center, in the planning of which the business approach was finely developed.

Analytical minds in management were agreeing in those days that column spacing for rental buildings should be from about 16 ft 6 in. to 18 ft. The basic idea was that 8 ft was the minimum for a private office with one window; and of course, that tenants paying

THE TREND TOWARD GLASS

Guillermo Zamora

An office building in Mexico City by Juan Sordo Madaleno & Augusto H. Alvarez, architects, from Mexico's Modern Architecture, *by I. E. Myers, Architectural Book Publishing Co., Inc.*

WITH fenestration in the lots-of-glass family, the grid module determines the spacing of partitions. If the module is 4 ft, the variety is limited to 8, 12, 16 or 20 ft, and no intermediate partitions are possible. Similarly, of course, a 3-ft module would give more variations, starting at 9 ft wide. If the module were made something like 4 ft 8 in., it would be possible to achieve the minimum 8-ft-in-the-clear office, but large units of space would be larger accordingly.

Columns may be set back from the wall, in the wall, or on the exterior to keep the inside flush. In some instances it has been possible to use struts in the wall in place of columns, so that the wall is smooth inside and out, and no problems of columns protruding into partitioned space need arise. Columns outside the wall are, of course, better than those in interior space, but even in this location they will frequently interfere with interior design effects.

Windows may be fixed if the building is air conditioned. With all windows fixed, cleaning becomes a problem; they must be washed by means of some exterior device. If certain sections are of double hung or projected type, they can be washed as normally from the outside, provided there is a sill or sunshade for the window cleaner to stand on. If the window is of a reversible type it can be washed from the interior.

Having a low sill, or perhaps no sill at all, can result in attractive and pleasant space, particularly if the building location enjoys a good view. If space for desks is at a premium, however, the low sill can present problems of furniture placement. The lower light can be of opaque glass to block unpleasant views into the office space from the outside. It is well to remember that some people are overly sensitive to heights, and in a tall building too low a sill might be psychologically disturbing.

Depending on the climate, heat loss will be a factor to reckon with in determining the glass area. One of the examples here shows a glass wall scheme from Mexico, where heat loss is of small consequence. Similarly, excessive glass can mean a great load on the air conditioning system. Glare is always a factor, and leads to a variety of sun control devices, or the simple device of lowering the head of the window and reducing the glass area.

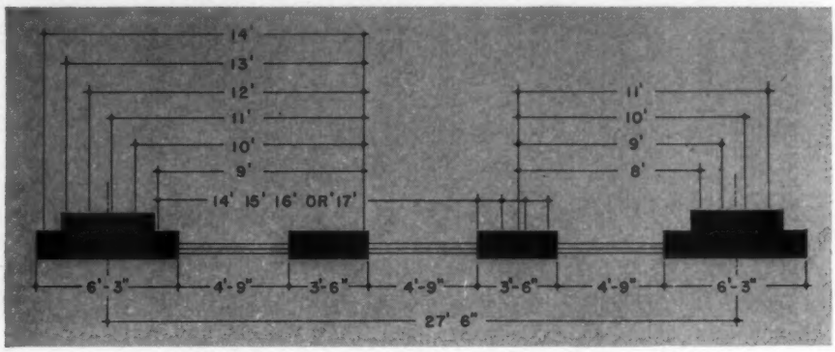
In one of the examples on this page the strip window is quite narrow; this fenestration was used for the Alcoa Building in Davenport, Ia. (Harrison & Abramovitz, page 206), and for the Esso Building in Bayway, N. J. (Lathrop Douglass, page 215). In the first instance it was designed to minimize the heating load; in the other, to provide some vision strip while keeping interior absolutely free for head-high partitioning. In the Alcoa Building the window head is kept down to 7 ft to combat sky glare, the window strip being for vision only, not for daylighting.

It is worth noting that one reason for the popularity of the now-common strip window in New York City is that it can be done quite economically under the building code.

the high rentals asked for new buildings in those days would want to cut up their space into minimum offices. Buildings which could provide 8-ft offices could offer maximum efficiency in the use of space, especially in competition with buildings with column spacing of 10, 12 or 14 ft, these tending to become indivisible modules.

Today it is still agreed that the 8-ft-in-the-clear office is about as small as can be. In the U N Secretariat, with a 4-ft module, the width of partitions takes off just enough so that two modules make the minimum office a trifle small. A great many office buildings have used a 4-ft module, but Harrison & Abramovitz prefer, where a module is appropriate, a larger dimension.

The architectural staffs for Rockefeller Center carried the minimum office idea into a scheme since considered a classic in this regard. The columns are spaced at 27 ft 6 in.; the intervening wall has three windows of the "punched hole" variety, with the width of the window a little greater than that of the piers. The C-to-C module is then about 9 ft, each typical division having one window, and one radiator. The extra dividend, however, comes in the ability to put the partition at any point between windows, so that any given office may have any desired width — 8, 9, 10, 11, 12, 13, 14, 15, 16 or 17 ft (see diagram). Naturally this encroachment on the module must be taken up somewhere, but usually this works out quite easily.



Partitioning possibilities at RCA Building, Rockefeller Center

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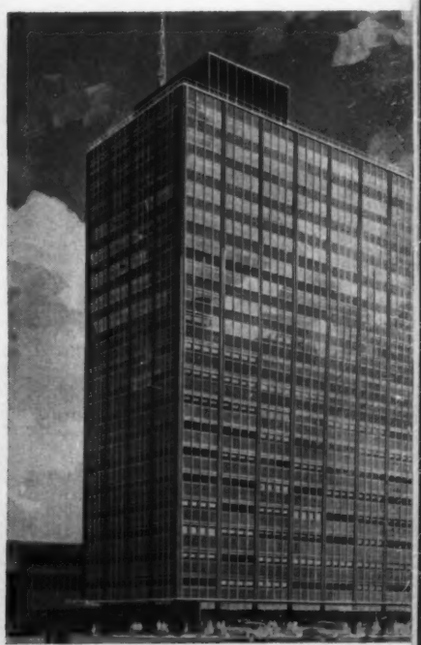
Douglas M. Simmonds



Inside column, top: Universal Building, New York City, Kahn and Jacobs, architects; bottom, Lever House, New York City, Skidmore, Owings & Merrill, architects. Above, left: Standard Federal Savings and Loan Association Building, Los Angeles, Welton Becket and Associates, architects; right: Henry C. Beck Building, Shreveport, La., Neild Somdal Associates, architects

Of course design did not stop dead at the Rockefeller Center scheme, but the flexibility of its space still challenges architects who are called upon to design multi-tenancy buildings for competitive rental markets.

One important development since the twenties is the increasing number of office buildings for single occupancy, most of them away from the pressure of high land values. In such cases, industrial management tends to have its own ideas of office arrangements and dimensions, ranging from no private offices at all, or no windows at all, up to full glass walls and 12-ft office widths. Sometimes it is important for organization and standardization that the company management can enforce a standard width without exception; frequently it is desirable that there be no physical possibility of variation. Thus the discipline of the module might be desirable, and the appropriate module can be based on office requirements.

Technology has wrought many changes also, and architects have experimented with and developed a great many ideas — air conditioning, sunshades, eyebrows and vertical fins, heat resisting glass, new cladding ideas and materials, new structural systems, sometimes using struts in place of columns at the exterior

WINDOW-AND-PIER FENESTRATION — A NEW TREND?

Swoger Studio

Left: Mellon-U. S. Steel Building, Pittsburgh, Pa., Harrison & Abramovitz, William York Cocken, associate architects. Right: proposed office building for Park Avenue, 55th to 56th Streets, for George J. Engler and associates, Kahn and Jacobs, architects

THE window-and-pier group of fenestration ideas enjoys its greatest popularity, of course, for multi-tenancy buildings, though it is well not to forget that sometimes a single-occupancy building is really in that class, since its use of space may be fully as varied as in the rental building. The number of recent buildings falling in this fenestration class might be taken as an indication of increasing popularity. It would probably be overdoing it to call this a return to traditional punched-hole window treatment, but it certainly indicates a consciousness of wall space between windows as providing flexibility within.

In this type of window solution, the column spacing is not always as traditional as the fenestration. Two of the buildings here illustrated have column spacing of about 28 feet, one with five windows to the bay, one with four.

The wall spaces are not necessarily uniform, some piers being quite wide, some being little more than wide mullions.

Sills tend to run, in these buildings, to the normal height, for naturally if the planners are seeking maximum use of space they will be conscious of the usefulness of space close to the windows. In some buildings, nevertheless, the window might have a high head and a low sill, perhaps where views are good and weather not too insistent a factor (Havana Embassy, page 205). It has been suggested that this type of window might be used also where daylighting was not the principal purpose, but rather merely vision outward. The idea seems conducive also to pleasant proportions and wall textures.

wall, sometimes with cantilevers, new ideas about site development and setbacks, improved lighting, and so on, not to mention new developments in the realm of esthetics. Any or all of these may introduce new disciplines affecting the fenestration.

As for the discipline of space, contemporary fenestration seems to divide into two general groups. One group includes the many variations of the glass wall or the continuous band of windows. The other group is, of course, the alternate window and wall system, no matter what kind of wall.

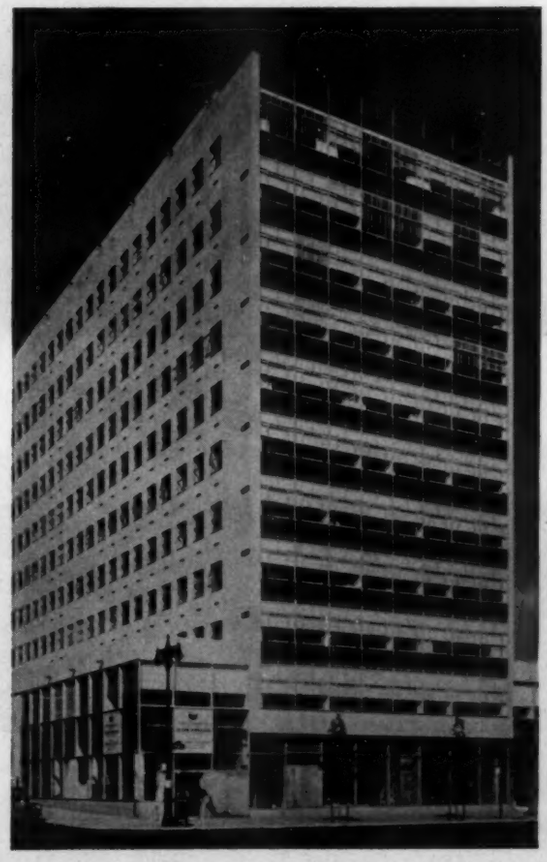
Spacewise, the essential difference between the two groups lies in the rigidity of the module, assuming that any partitioning is done only at a mullion or some other interruption to the glass.

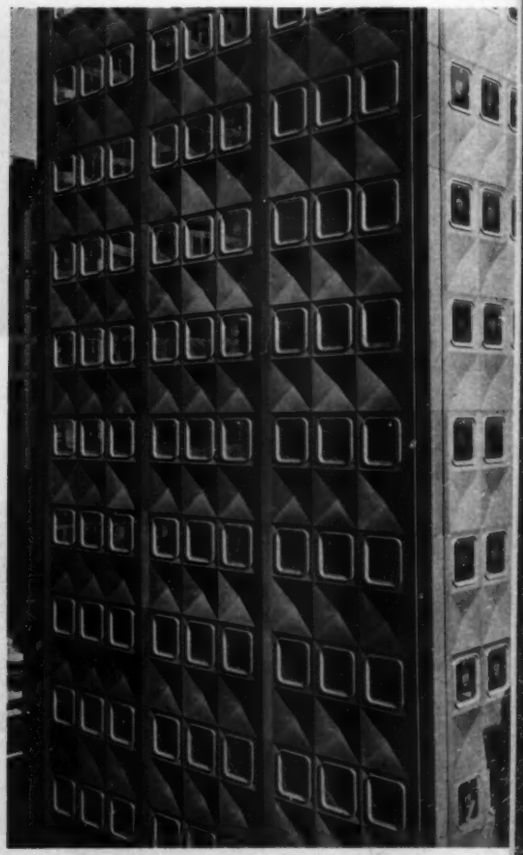
One other idea, mentioned a bit tentatively by Mr. Abramovitz, is that one might begin thinking more of different fenestrations on different exposures of the same building. This would certainly seem logical where orientation is a factor on four sides of a building. Of course nobody claims there is anything new about this idea, but it would seem that it might be much further developed than it has normally been. It would seem, too — and perhaps this is as important as orientation — that it would produce some handsome and interesting architecture.

Samuel Chamberlain

Fenestration of RCA Building, Rockefeller Center; Reinhard & Hofmeister; Corbett, Harrison and MacMurray; Hood and Fouilhoux, architects

Jay-Bee Studio





Above: Sinclair Building, Chicago; Holabird & Root & Burgee, architects. Right: Carnegie Endowment for International Peace Center, New York City; Harrison & Abramovitz, Goldstone & Abbe, architects. Far right: Alcoa Building, Pittsburgh, Pa.; Harrison & Abramovitz, Altenhof & Bown; Mitchell & Ritchey, associated architects

Beginning a series of one-page presentations of office buildings, with text notes on fenestration problems supplied by the architects themselves — six by Harrison & Abramovitz, two each by Carson & Lundin; Skidmore, Owings & Merrill; and Lathrop Douglass

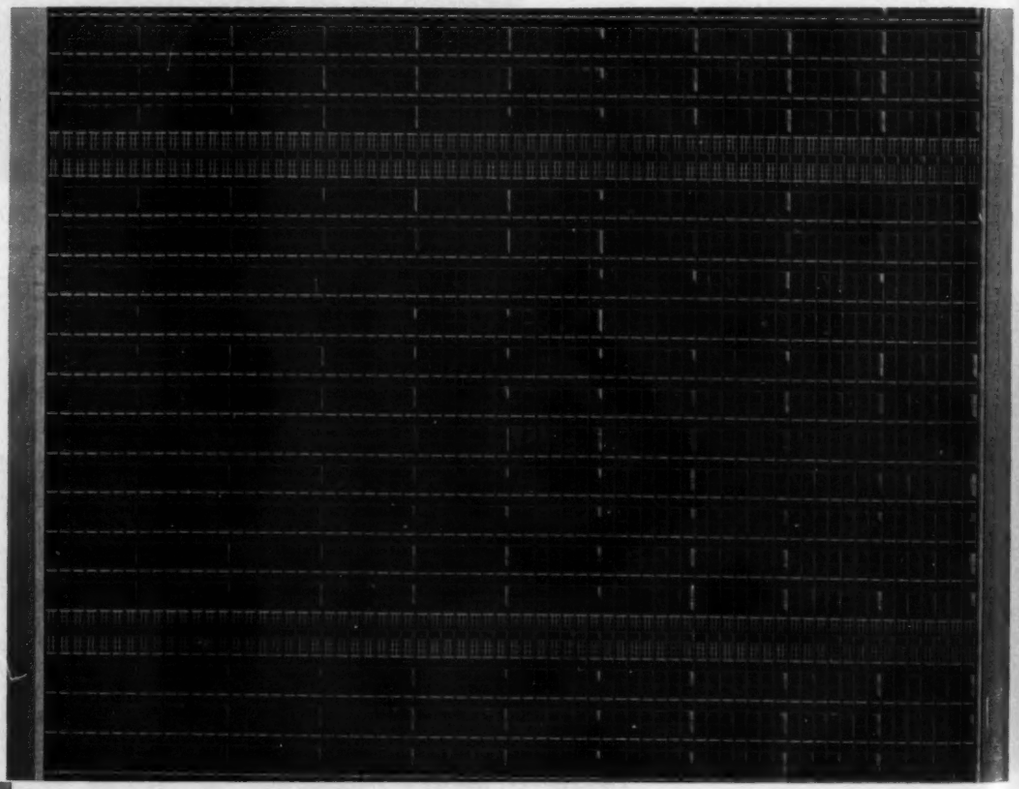
UNITED NATIONS SECRETARIAT

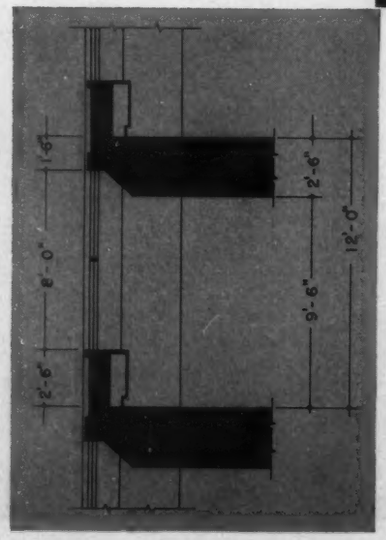
New York City

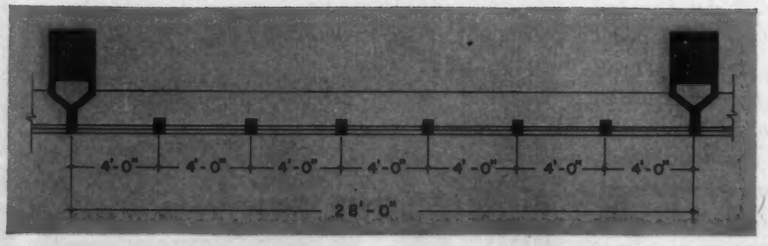
Wallace K. Harrison, Director of Planning

HEREIN the glass and metal facade was developed in an office building with the elimination of all piers on the exterior and its column spacing wider than that at Rockefeller Center to become 28 ft 0 in. A double hung window was used and made of aluminum, designed to a 4-ft module thought best at that time. Since then, we feel that the 4-ft module when doubled produces an office less than 8 ft after partitioning and that is considered too small an office for standard furniture. Sill heights were 2 ft 6 in. The head of the window was at the spandrel line but made to fit the grid. Columns were placed at the inside of the wall. The spandrel was for the first time completely covered by glass, back up was still of masonry due to the prevailing N.Y.C. code. Glass was chosen for economical reasons as well as appearance. The reversible window had not yet been fully developed and tested. Floor to floor height 12 ft 0 in.

Joseph W. Molitor





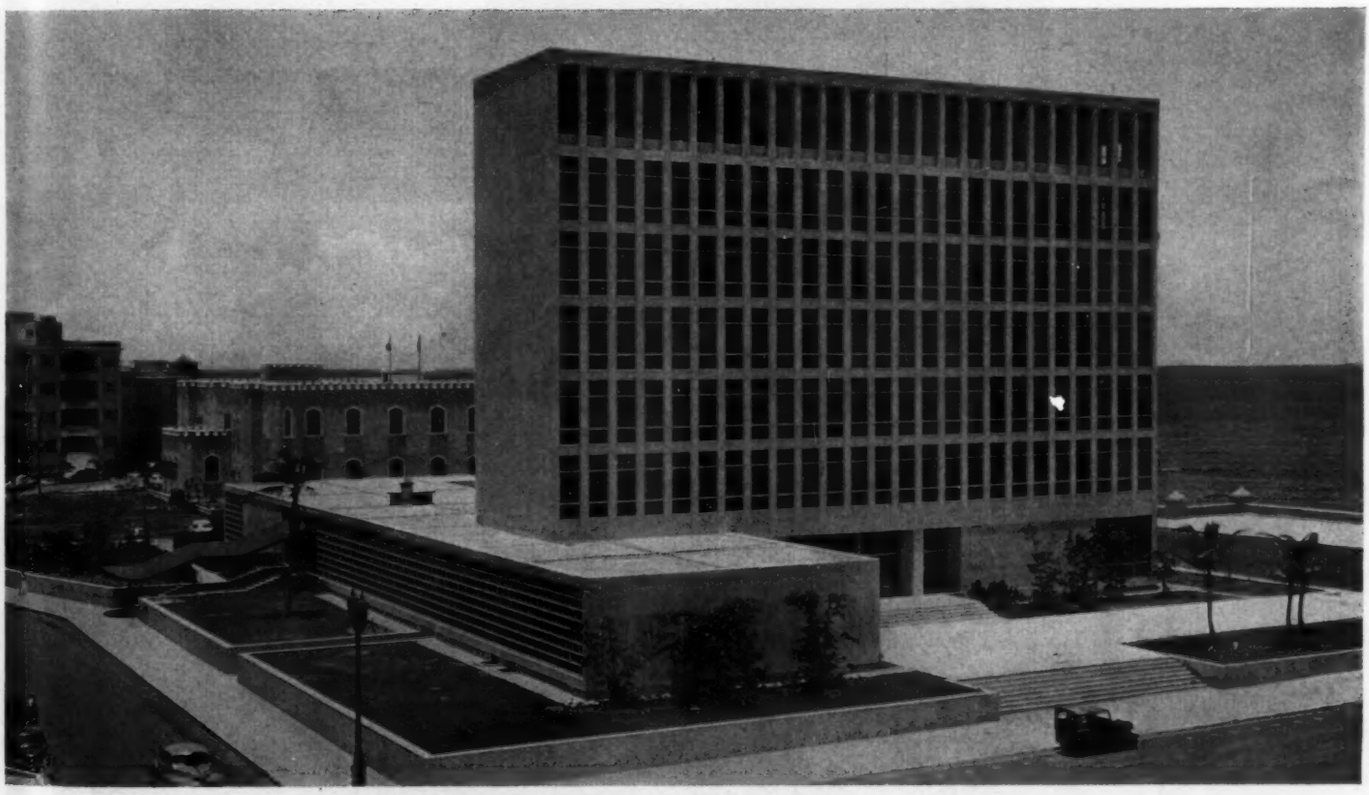


U. S. EMBASSY BUILDING

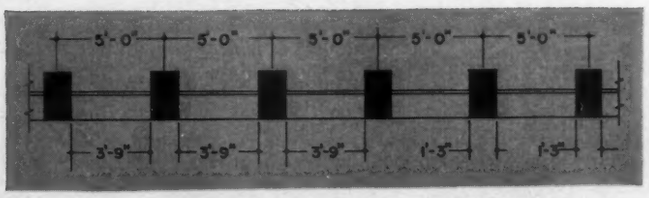
Havana, Cuba

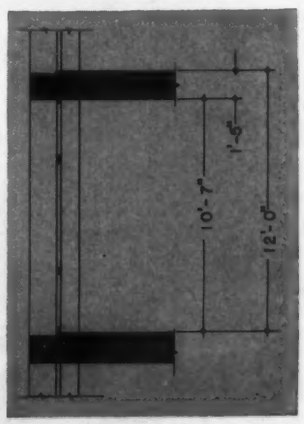
Harrison & Abramovitz, Architects

THE office building tower of this building was oriented favorably and the narrow end walls made solid against undesirable sun and weather. Since cold is not a factor, and the view very attractive, maximum window space was sought for. Here windows start just above the floor and go to ceiling. The small piers between windows in the scheme were the result of a structural system which eliminated interior columns and floors were supported by small concrete piers faced with travertine on the outer walls. The building is air conditioned, but window parts are moveable to take advantage of fair weather when air conditioning system is to be shut off. The small structural pier system permitted a uniform interior wall free of protruding columns. Floor to floor height is 12 ft 0 in.



J. Alex Langley



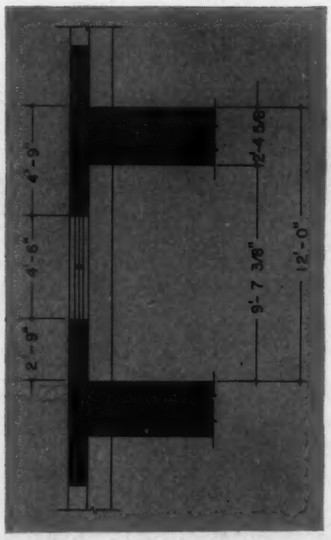


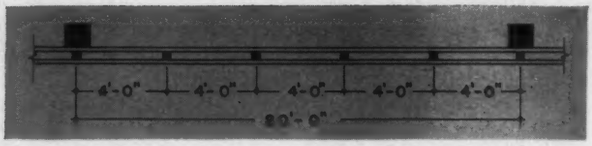
ALCOA ADMINISTRATION BUILDING

Davenport, Ia.

Harrison & Abramovitz, Architects

THIS was one of the first serious attempts at an all aluminum facade for an office building. The exterior was cast aluminum. Since this was a factory office building with few private offices and in a part of the country that has severe extremes in climate, the end result was a continuous window for the maximum effect on the open space within but the window height was kept to a minimum. The sill at 2 ft 9 in., the head at 7 ft 3 in., produces a window of 4 ft 6 in. in height. This controlled height of window has reduced sky glare and permitted the use of a radiant heating wall and ceiling system, the elimination of wall units and the capability of placing desks very close to the walls. The column spacing was 20 ft o.c., windows 4 ft on center. Floor to floor height is 12 ft.

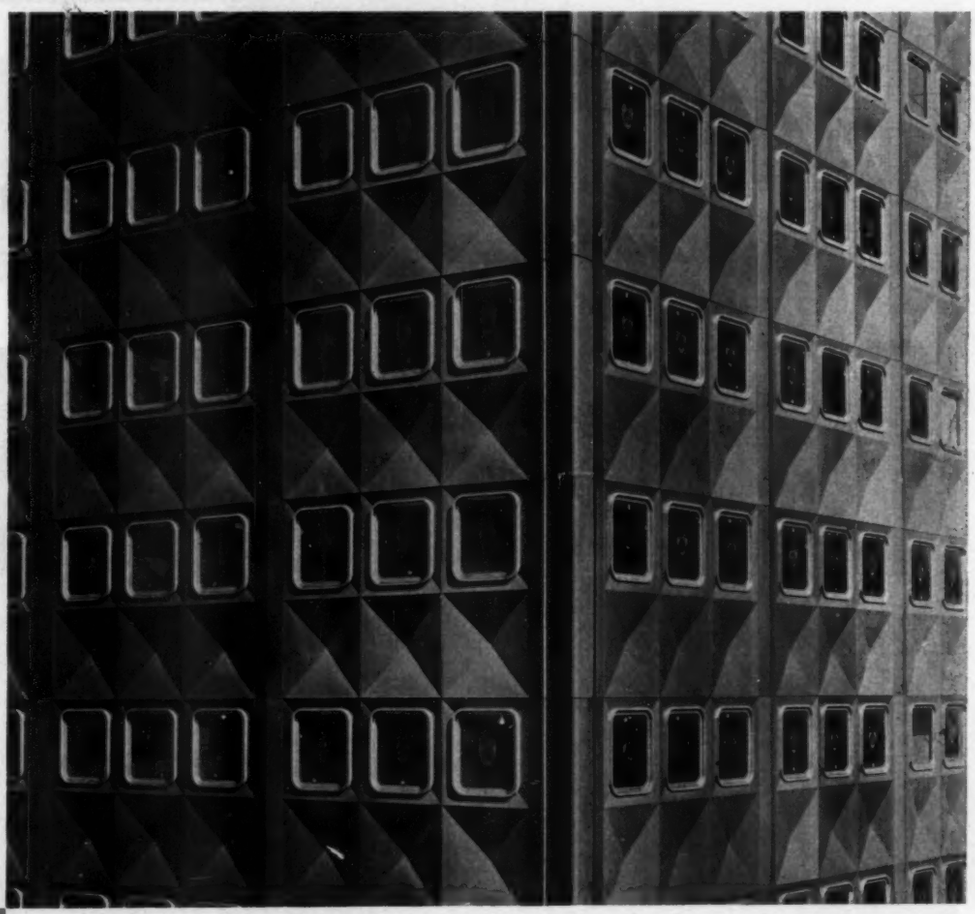


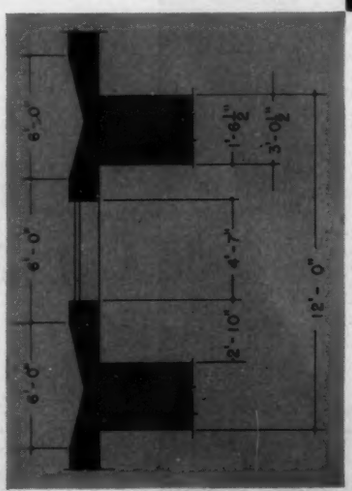


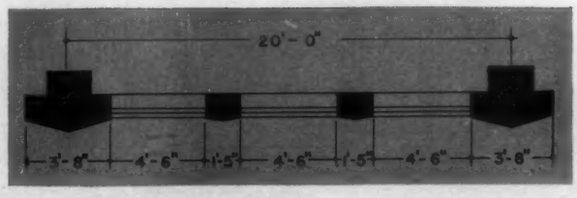
ALCOA BUILDING, *Pittsburgh, Pa.*

Harrison & Abramovitz, Altenhof & Bown, Mitchell & Ritchey, Associated Architects

THE owners were desirous of developing a weathertight, maintenance building using the maximum amount of metal economically with reasonable and sensible consideration for the use of natural light. It was their conviction that aluminum had the potential and from there the program developed. The building was to be designed for office space of varying office sizes. The windows developed had a head of 7 ft 5 in., slightly more than that successfully experienced on the earlier office building in Davenport for Alcoa. The sill is 2-ft 10-in. high. The search for a window capable of being cleaned from the inside developed the first completely and now popular reversible or pivoted window. In order to develop a thin wall within modern progressive building codes wherein requirements are controlled by performance standards instead of fixed materials or thickness standards our research produced a metal skin backed up by a thin layer of perlite with the proper fire rating. Window heating and cooling units on the outer wall were eliminated to produce maximum floor space. The air conditioning system in this instance developed into a combination radiant heating and cooling system in the ceiling. Floor to floor height is 12 ft 0 in.





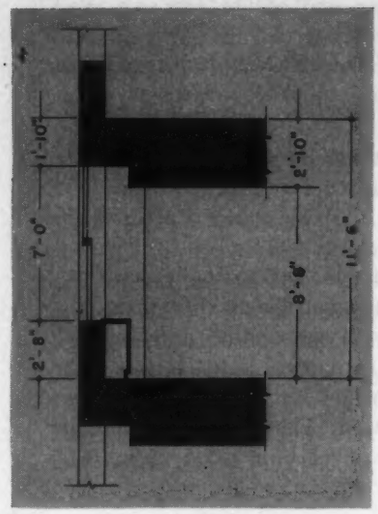


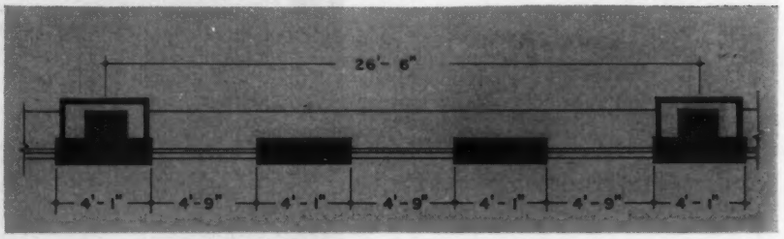
U. S. RUBBER COMPANY BUILDING EAST

Rockefeller Center, New York City

Harrison & Abramovitz, Architects

THE addition to the U. S. Rubber Building now under construction carries out the original window spacing of Rockefeller Center which is essentially a 4 ft 9 in. window with a 4 ft 1 in. pier within column spacing of 26 ft 6 in. It has continued to prove successful in Rockefeller Center since it creates one of the greatest number of different office sizes for the numerous different tenants of different room requirements. Floor to floor height is 11 ft 6 in. with air conditioning — 12 ft 0 in. is now desirable.





MELLON-U. S. STEEL BUILDING

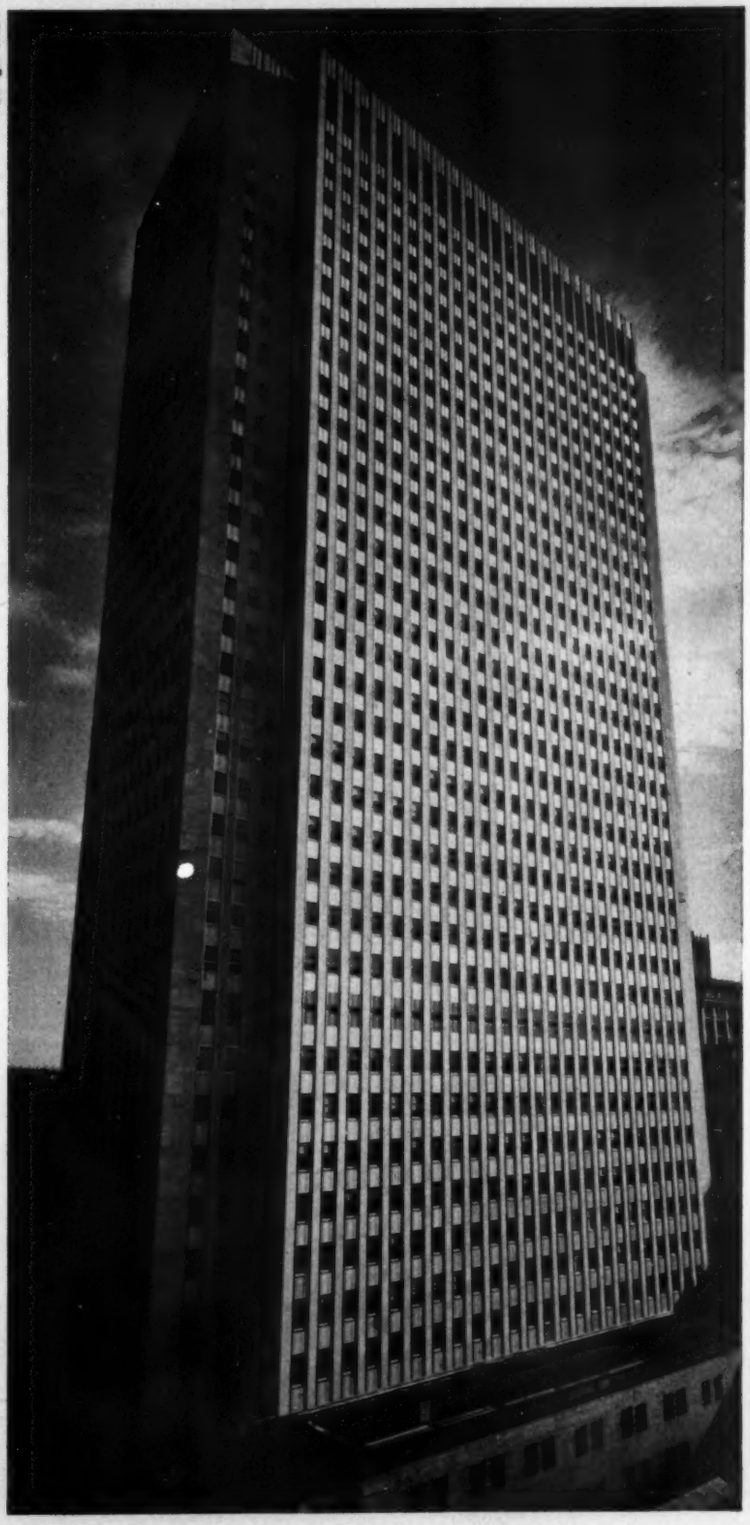
Pittsburgh, Pa.

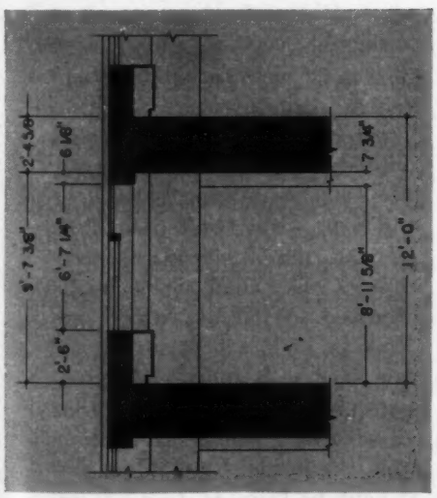
Harrison & Abramovitz,

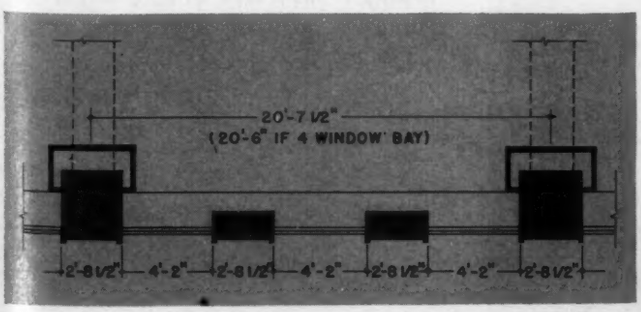
William York Cocken, Architects

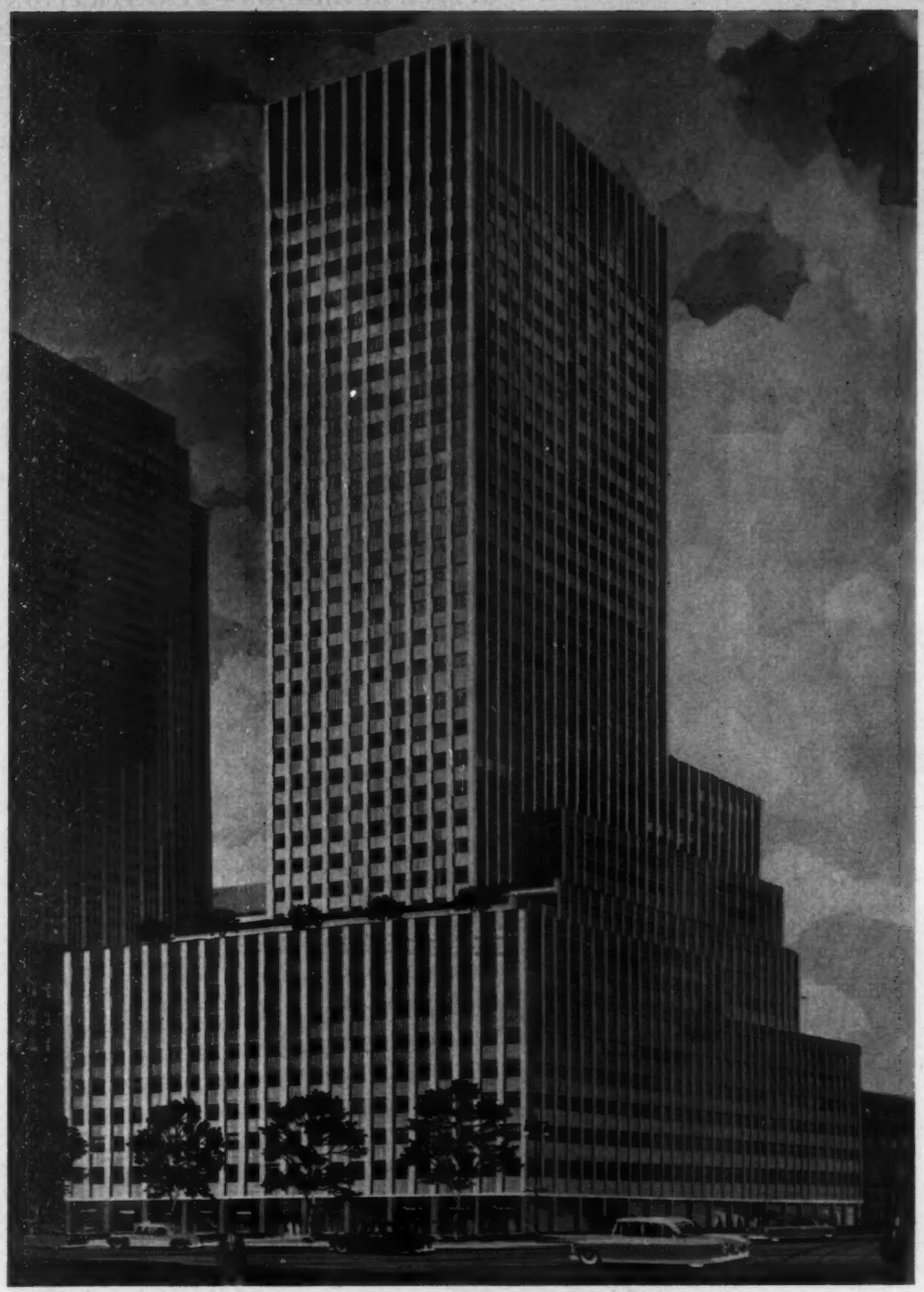
HEREIN the user — U. S. Steel — set up a requirement of 14 ft and 21 ft offices, i.e., a 7 ft 0 in. module with windows 4 ft 2 in. and the remainder of solid wall. Windows were double hung with the top member fixed, locked, but lower member can be opened for cleaning purposes. This building was planned before the pivoted window had been fully developed. The sill was at 2 ft 6 in. high. Floor to floor height is 12 ft 0 in.

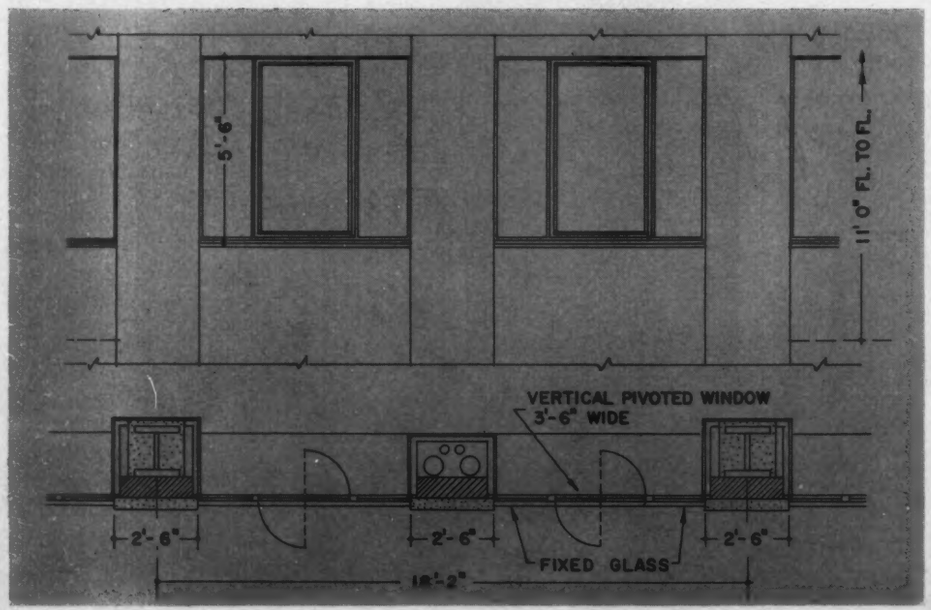
Swoger Studio





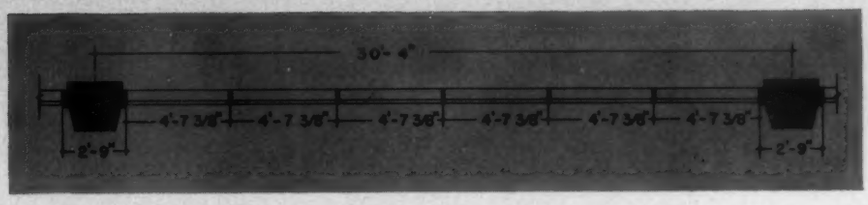


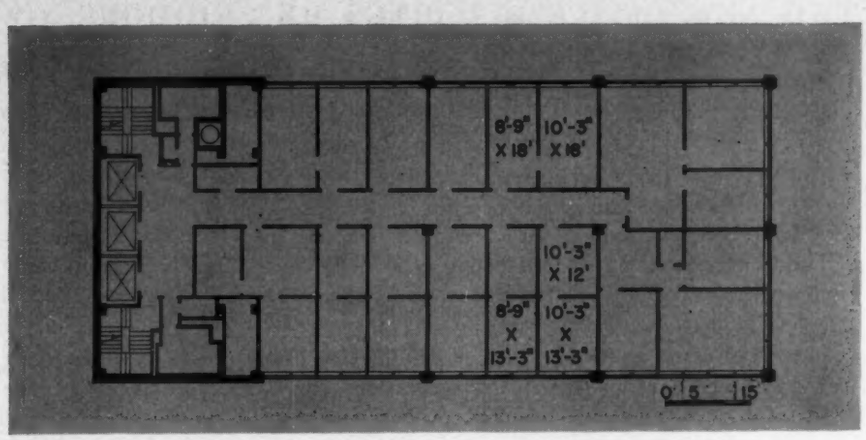




NEW BUILDING
FOR TISHMAN
666 Fifth Avenue
New York City
Carson & Lundin, Architects

CLOSE proximity of this new building for the Tishman interests to Rockefeller Center seemed to suggest a certain harmony with the Center fenestration, but there was a definite desire to have larger glass areas, along with flexibility in partitioning of space. The scheme alternates six-foot windows with two-foot-six-inch piers, so that a considerable variety of office dimensions can be obtained. Windows, which are 5 ft 6 in. high, will have two narrow fixed sash and a center section pivoted vertically, so that all window washing can be done from the inside. Column spacing is kept to from 17 to 18 ft, in order to keep floor to floor height to 11 ft, with air conditioning as a factor.





OFFICE BUILDING FOR A SOUTHERN CITY

Carson & Lundin, Architects

THE client for this proposed office building wanted to be able to offer some deep space, some shallow, with a variety of office widths, a set of requirements which has probably been heard of before this. As the plan shows, the scheme provides for one row of offices at normal 25 ft depth, one row at only 18 feet. The window module is approximately 4½ ft, with a column adding about 2 ft to vary the office width wherever columns occur. Typical offices are around 8 ft 9 in. wide, with some 10 ft 3 in., or, of course, larger by any added number of modules. Column spacing is 26 or 30 ft, and all columns are kept outside the building. Notice that there are only two interior columns in the whole rental area.

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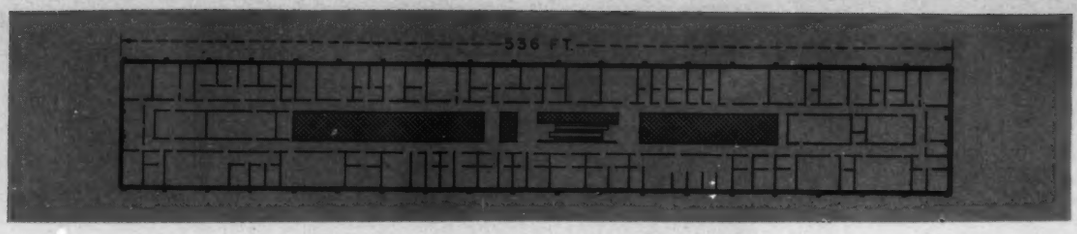


TWO NEW OFFICE BUILDINGS BY SKIDMORE, OWINGS & MERRILL, ARCH.

Administrative Headquarters, Ford Motor Company, Dearborn, Mich.
Connecticut General Life Insurance Company Building, Bloomfield, Conn.

THE fenestration of the two buildings considered here clearly reflects the very different purposes for which they have been designed.

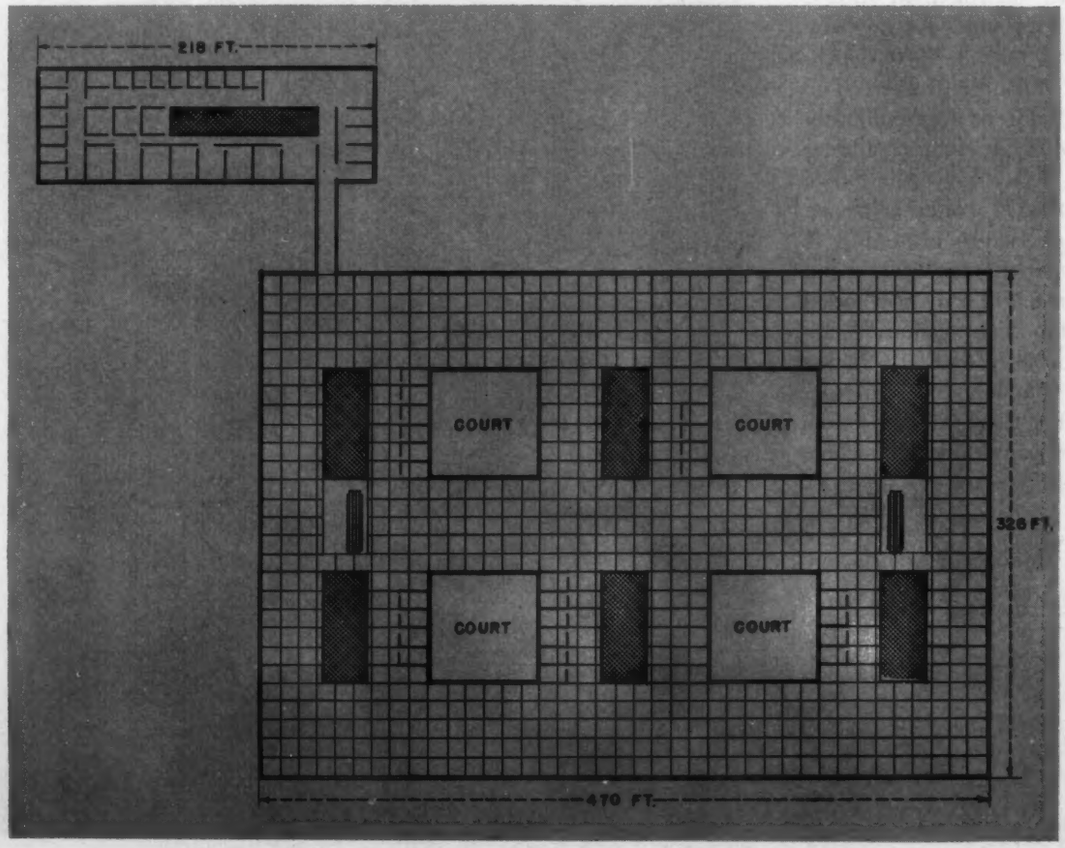
The Administrative Headquarters for the Ford Motor Company, now under construction in Dearborn, is primarily planned for accommodation of the executive functions of the company with intensive subdivision into private offices.

The design of the Home Office Plant for Connecticut General, now being built outside of Hartford, has been largely determined by requirements of large clerical groups whose functions demand flexibility in departmental arrangement and freedom in adjustment of inter-relationships. Little need for private offices or other subdivided space, therefore, exists on these floors.

Both buildings have been designed for full air conditioning with fixed glass. Both sites are large and every reason exists for providing full visual access to the green lawns and trees that will surround them.

Framing and windows of the Ford Motor Company headquarters are governed throughout by a 4-ft 8-in. module, providing optimum spacing for private office subdivision. Since such requirements are very limited in Connecticut General's main building, advantage has been taken of maximum glass sizes based on divisions 12 ft on centers. Spacing in one wing, however, where more intensive subdivision will be required, is reduced to 6 ft. The difference between this relatively generous basis for partition layout and Ford's closer 4-ft 8-in. module reflects somewhat larger standards for top level offices generally accepted in insurance practice.

In the Ford Building, columns 28 ft on centers are located outside the exterior line of the building's skin to preserve a smooth interior surface. Columns in Connecticut General's Building are located only in exterior walls 12 ft on centers, spanning up to 60 ft over work areas. These smaller columns can therefore be absorbed in the depth of the wall and serve as mullions.



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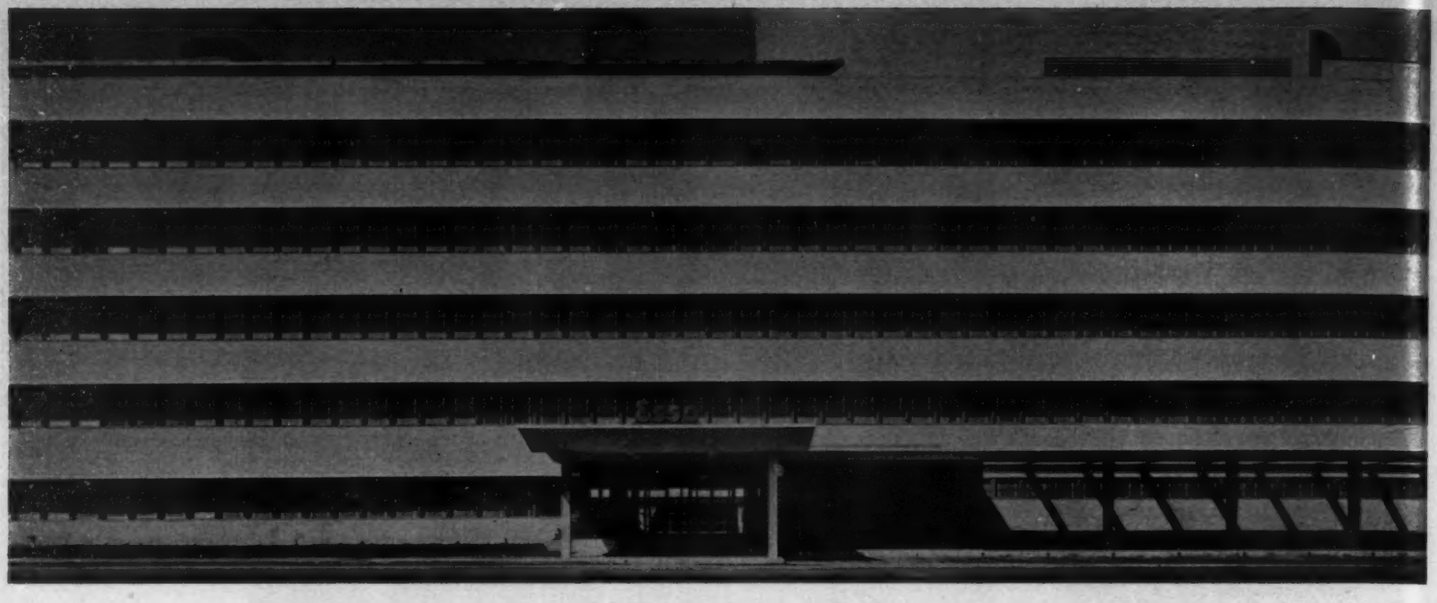
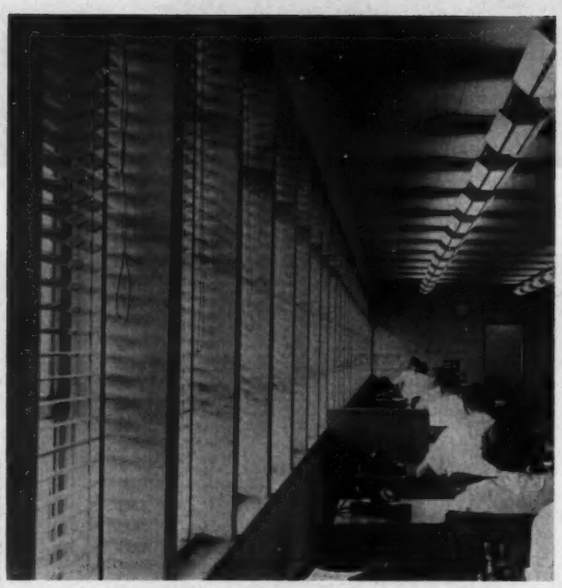
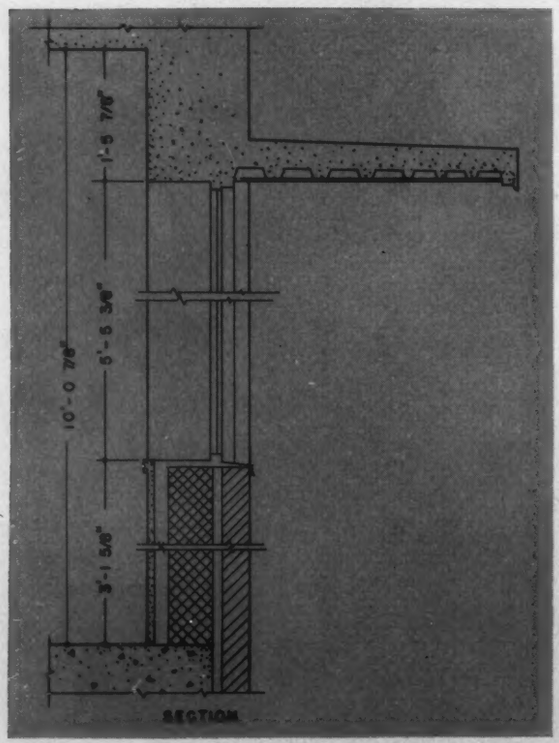




Gottscho-Schleisner



ESSO STANDARD OIL COMPANY

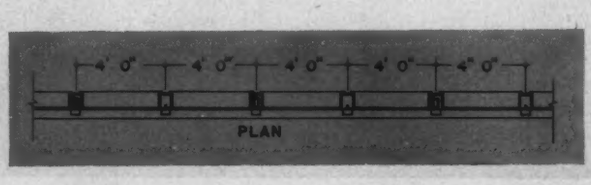
Baton Rouge, Louisiana

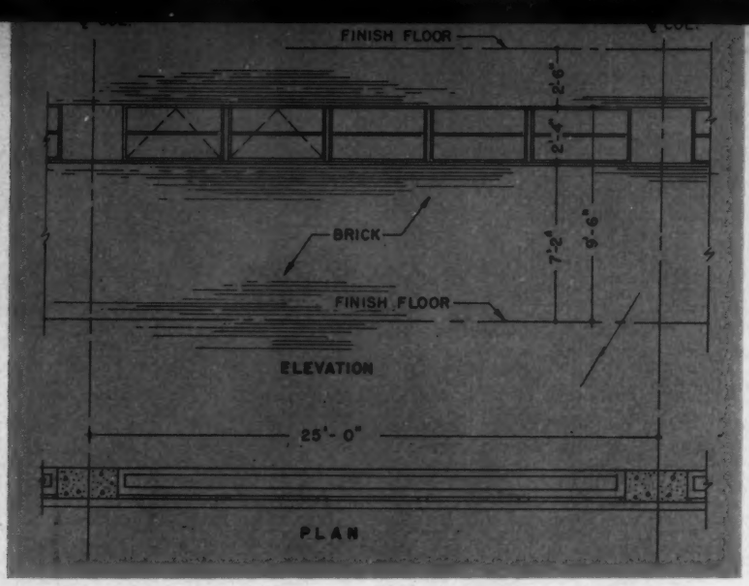
Lathrop Douglass, Architect

Carson & Lundin, Associate Architects

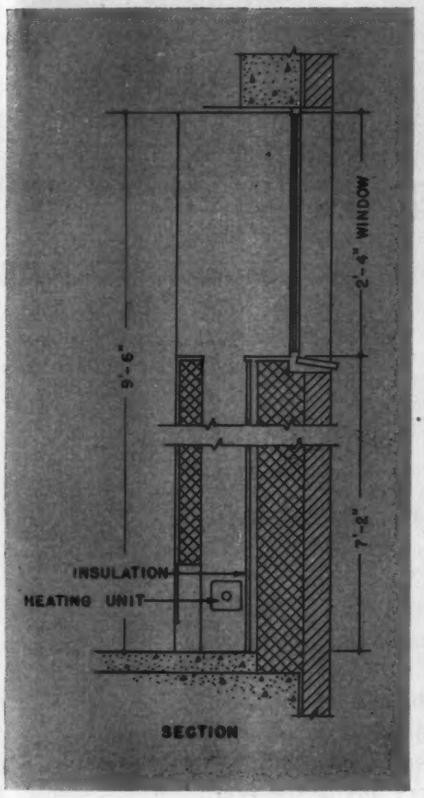
PROBLEM: Provision had to be made for a large amount of space devoted to engineering departments. In past, these had been inefficiently crowded into bull pens. Criteria for the new building called for maximum privacy. Minimum engineering office for one man was set at 8 ft; minimum for two, 12 ft. This indicated a module of 4 ft which was adhered to in every facility in the building. Because of constant changes in departmental requirements, maximum flexibility was mandatory, with minimum time loss in changes, together with complete standardization of facilities for each category of employee.

SOLUTION: Four-ft module windows; no projecting and obstructing columns in exterior walls, achieved by use of channels imbedded in alternate mullions; 4-ft module ceiling duct heating and cooling so no radiators or pipes in exterior wall; 8-in. window mullions, plastered and flush with plastered exterior wall so that standard module movable partitions could be set against mullion at any 4-ft point with ease and with every space unobstructed and identical in dimensions. The windows after much study were made openable for economical washing but with handles removed to avoid opening by others than maintenance staff. Employees now wash exterior, however, while standing on the sun canopies not originally designed for this purpose; this permits exterior washing without opening windows and disturbing sash.





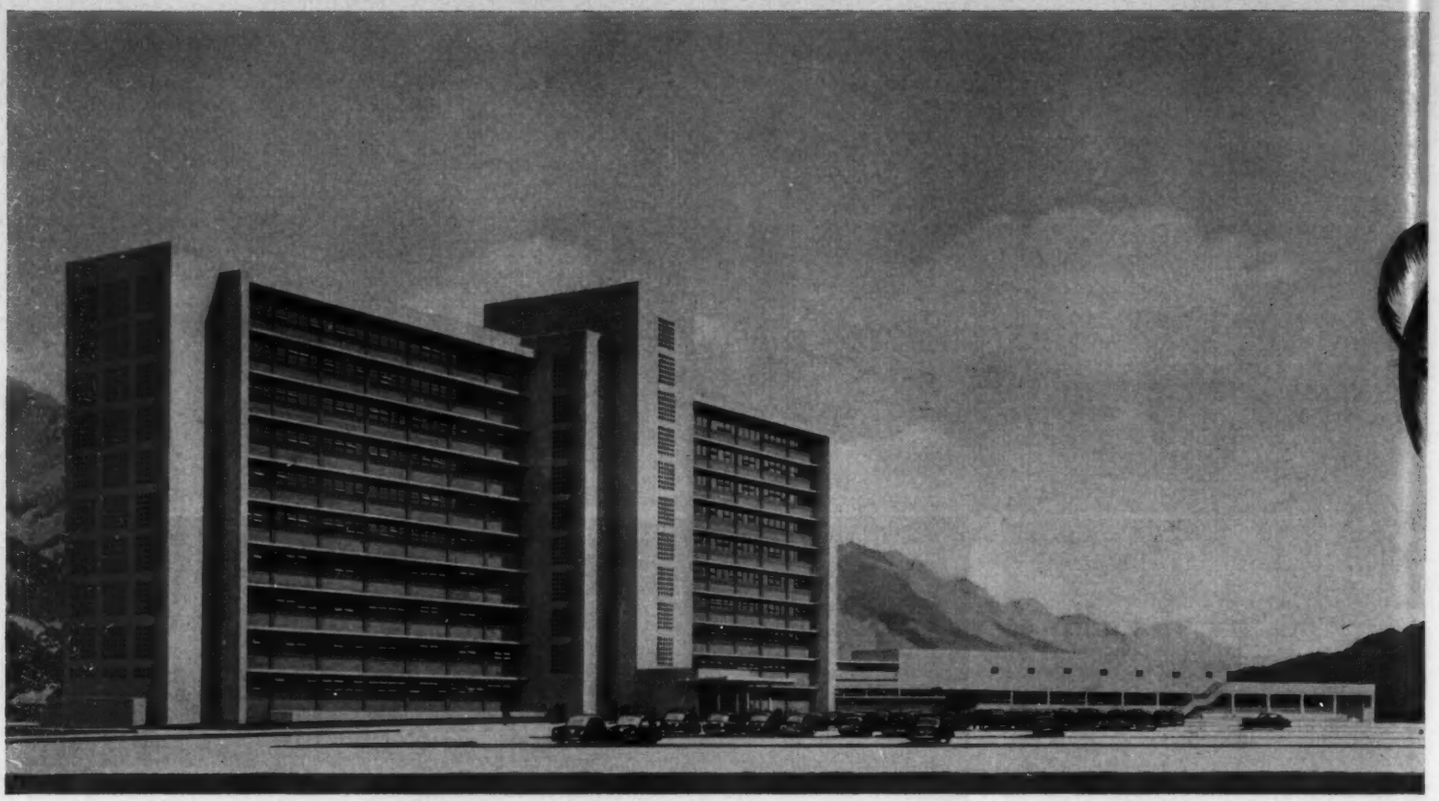
Gottscho-Schleisner

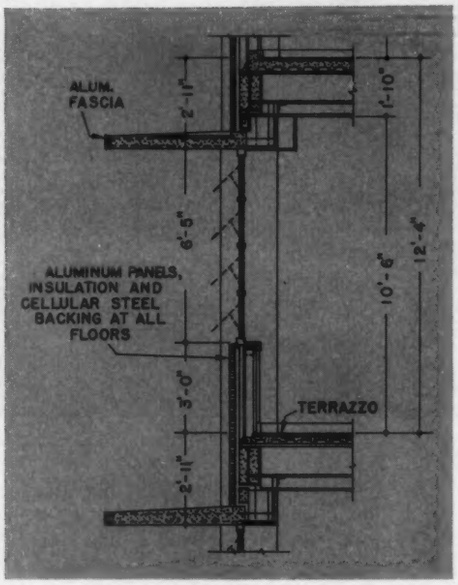


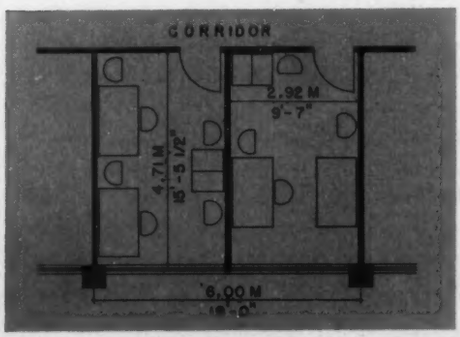
ESSO STANDARD OIL COMPANY, ***Bayway, N. J.*** ***Lathrop Douglass, Architect***

PROBLEM: Again a large part of the building had to contain engineering groups. Experience in Baton Rouge indicated that private offices greatly upped employee efficiency but that supervision and collaborative group action were hampered. Program therefore called for privacy, supervision and encouragement of collaborative action, all on basis of 80 sq ft maximum per person.

SOLUTION: Use of functional furniture, i.e., 6-ft high movable partitions, semi-private offices with no doors and separated into intercommunicating groups of 6 to 12 engineers. This set-up on one side of the building corridor, typical private offices on opposite side. As offices for economy had to be at least 4 offices deep (transverse to building axis), the windows on the functional furniture side were set with sills 6 ft 6 in. above floor; columns were made rectangular with long axis parallel to exterior wall. Convectors were set behind a 6 ft 6 in. plastered panel reaching to the window sills (a radiant panel in reality). Thus the entire exterior wall is smooth, flush and capable of taking the furniture literally at any point without complications due to windows, columns or radiators, or without causing one man to have more heat or light than another. Windows are openable for washing only.







CREOLE PETROLEUM CORPORATION

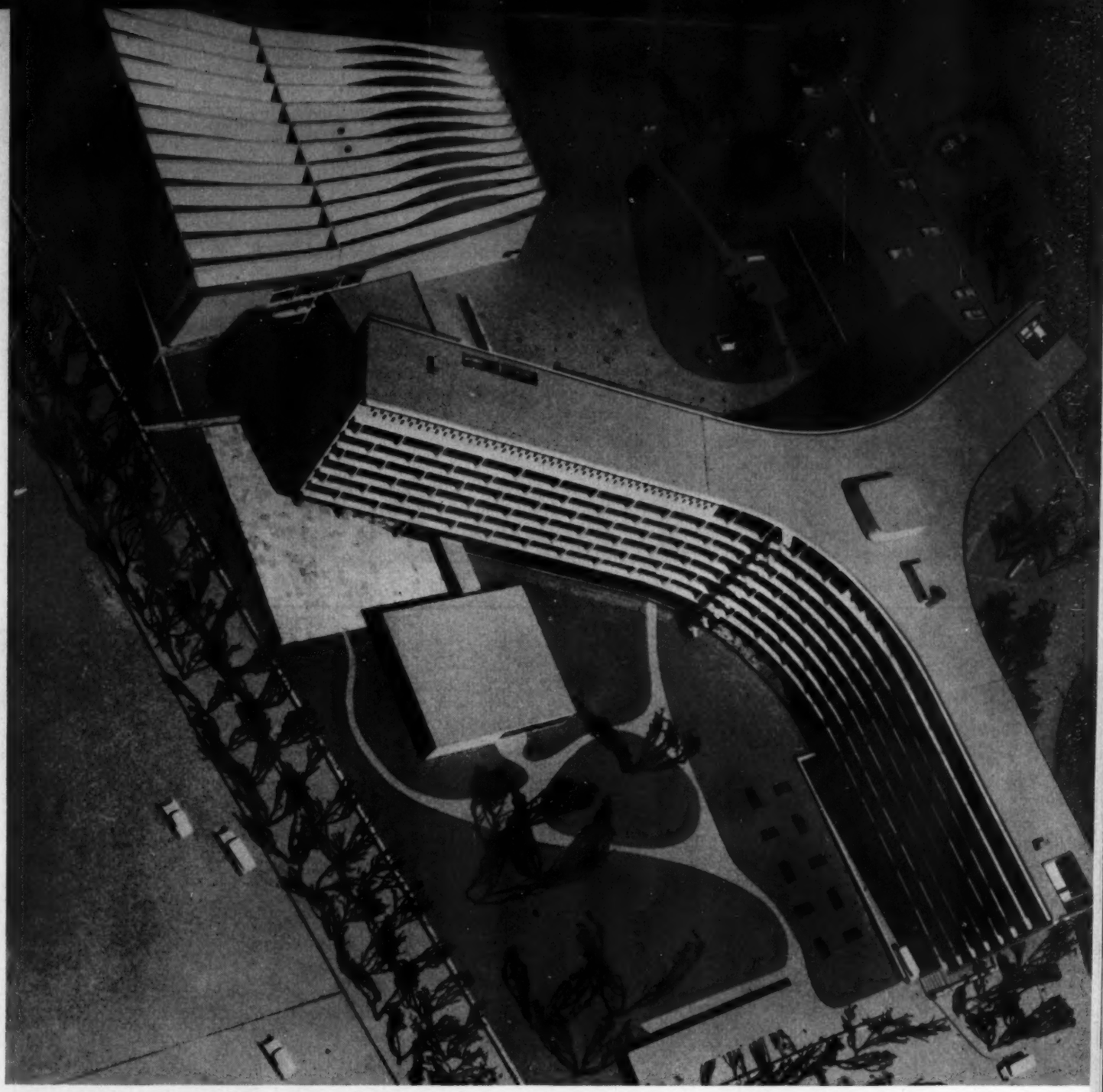
Caracas, Venezuela

Lathrop Douglass, Architect

PROBLEM: Maximum standardization of facilities, avoidance of sun heat, unobtrusive earthquake bracing.

SOLUTION: All offices face north or south. Because of the 12 degree latitude it was possible to provide cantilevered overhangs in sun canopies keeping sun out of windows all hours of the day, every day in the year.

Four equal sized windows placed between 20-ft center to center exterior columns. A deliberate effort was made by this means to force a standardization of only two office sizes, 10 ft for typical, 20 ft for department heads and management (to minimize staff jealousies, etc.). A 15-ft office would be impossible, and the nearest to it could not be made without ordering special panels for the movable metal partitions. Columns had to project beyond the wall both inside and outside because of required earthquake connection details. Diagonal steel earthquake bracing set in hollow aluminum faced spandrel panels. Sash to ceiling and 100 per cent openable awning type to provide maximum ventilation and rain protection when open. Unglazed open camboge in lieu of windows at east and west end of building where sun is blocked from offices by stairs and toilets and glazing is unnecessary.



UNESCO

HEADQUARTERS DESIGN MODIFIED FOR BUILDING

Place de Fontenoy, Paris

Marcel Breuer, Architect

Bernard Zehrfuss, Architect

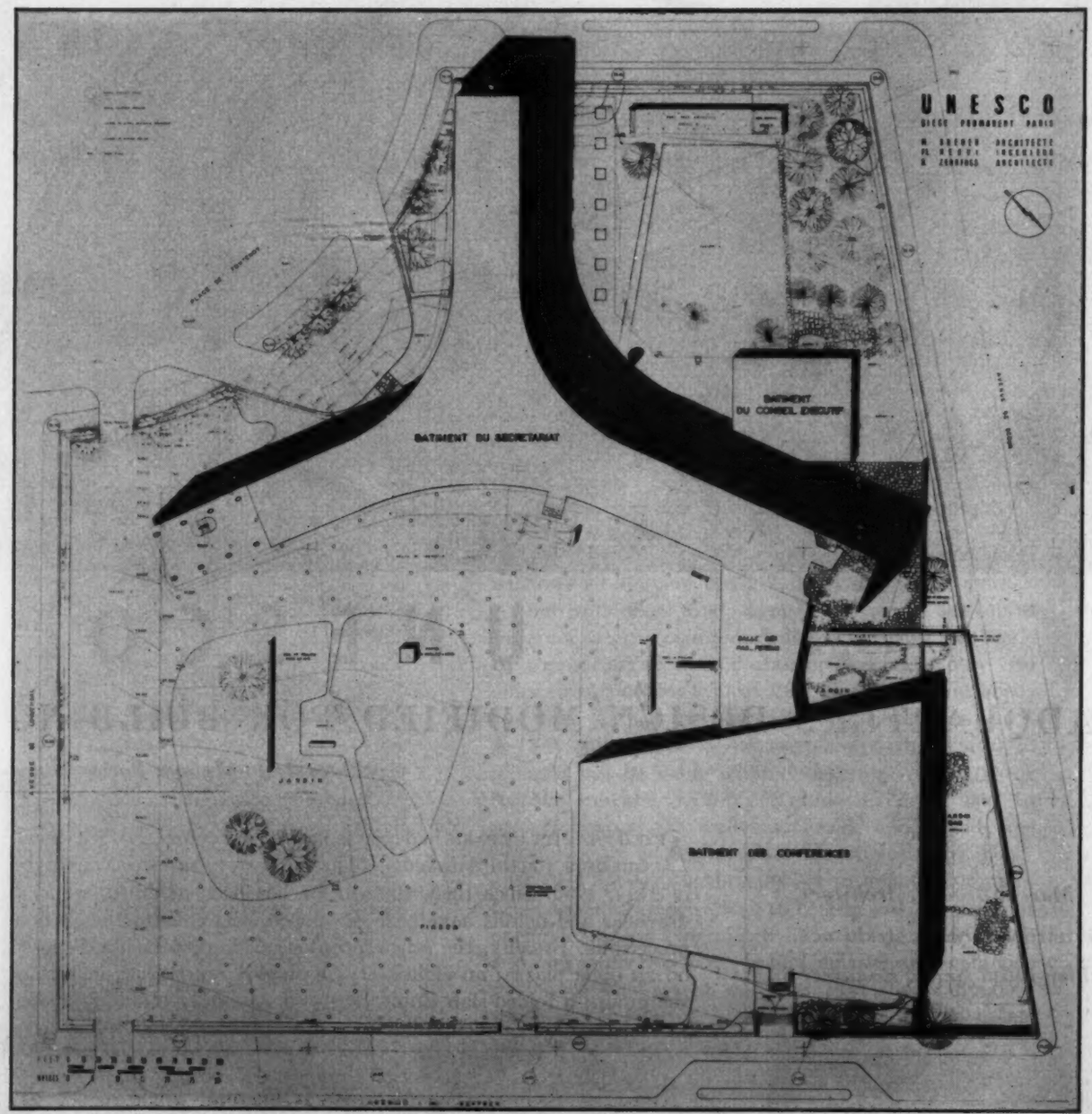
Pier Luigi Nervi, Engineer

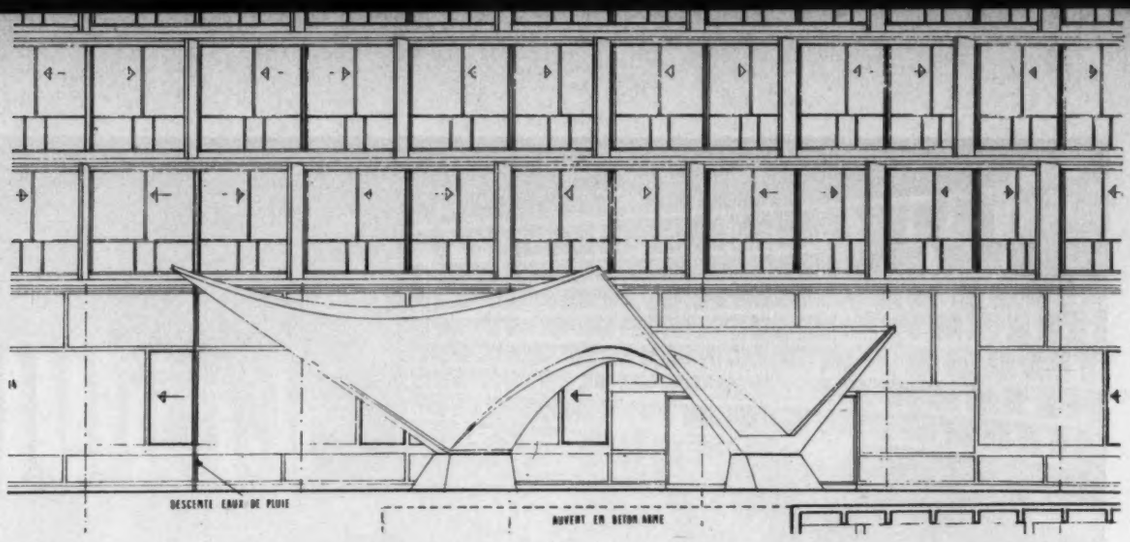
AFTER THE CITY OF PARIS had rejected two schemes for UNESCO headquarters, the third design — in preliminary form — was approved in May, 1953. Since then, the scheme has been modified, working drawings and details have been developed, and construction is now proceeding. Broadly, the scheme consists of four elements disposed on an open piazza: an eight-story, Y-shaped Secretariat, largest of the group; a folded-slab Conference and Assembly building; a one-story Executive Council building; and a Main Lobby link, known as

the "*Salle des Pas-Perdus*," which serves as a common meeting ground and functional center for the entire group.

Refinements and modifications have resulted from development of the preliminary idea. The piazza, formerly an unbroken paved area, now contains a garden of interesting shape near its center — an improvement that interrupts the view toward the Avenue de Suffern and the blighted area beyond. In order to simplify construction, the formerly tapered wings of the Secretariat have been made rectangular in plan so that their cross-section is uniform — except where the three wings conjoin. Interestingly formed entrance canopies have been added to the two main Secretariat entrances; the central Main Lobby has been considerably enlarged.

When the UN was built, some questioned the architectural symbolism of Secretariat dominating Assembly; others praised it as a proper expression. In Paris today, a tall building is prohibited by the authorities. The UNESCO Secretariat bows to the past and its Parisian setting in carrying out the curve of the Place de Fontenoy, yet is at the same time a highly functional office building. Its graceful horizontality and changing fenestration pattern create a new kind of expression for public buildings.




DESCENTE EAUX DE PLUIE
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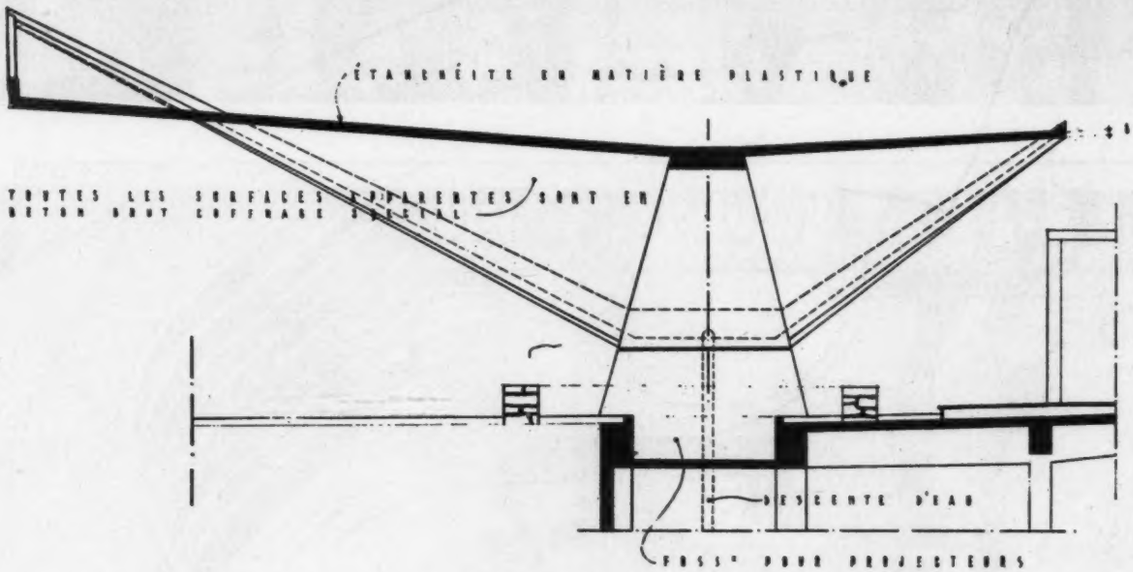
ÉTANCHÉITE EN MATIÈRE PLASTIQUE
TOUTES LES SURFACES APPARENTES SONT EN
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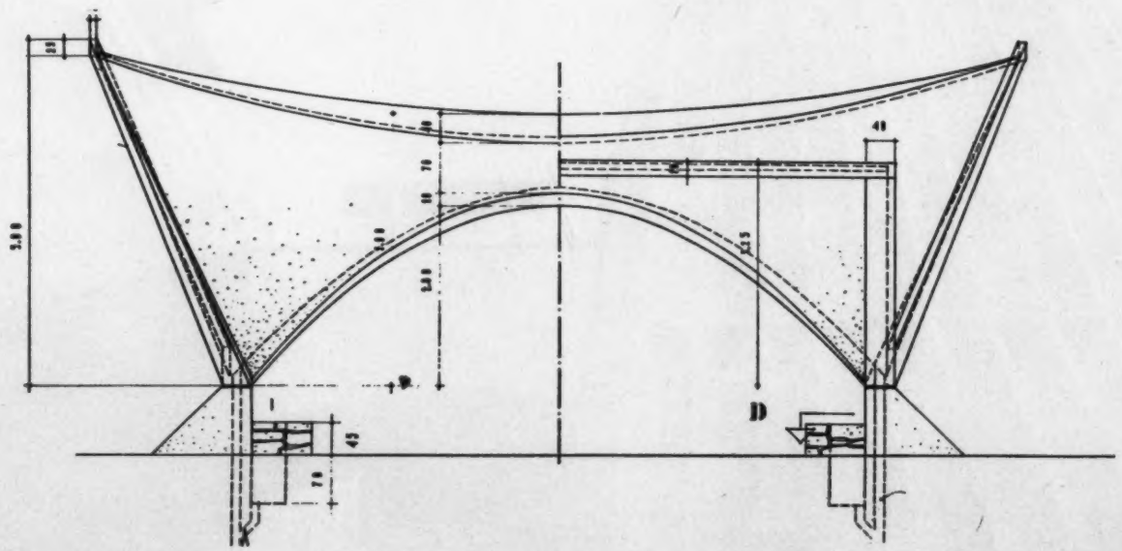
PASS.S POUR PROJECTEURS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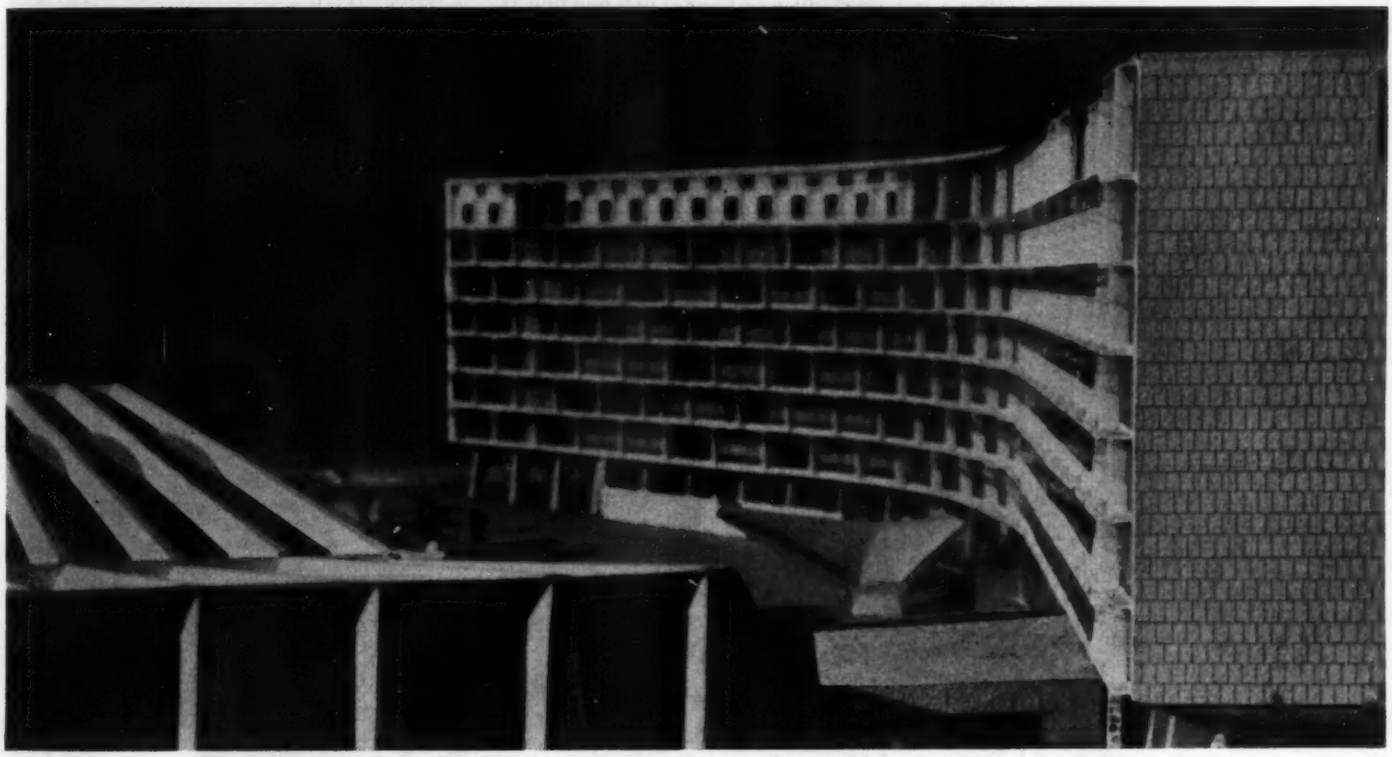
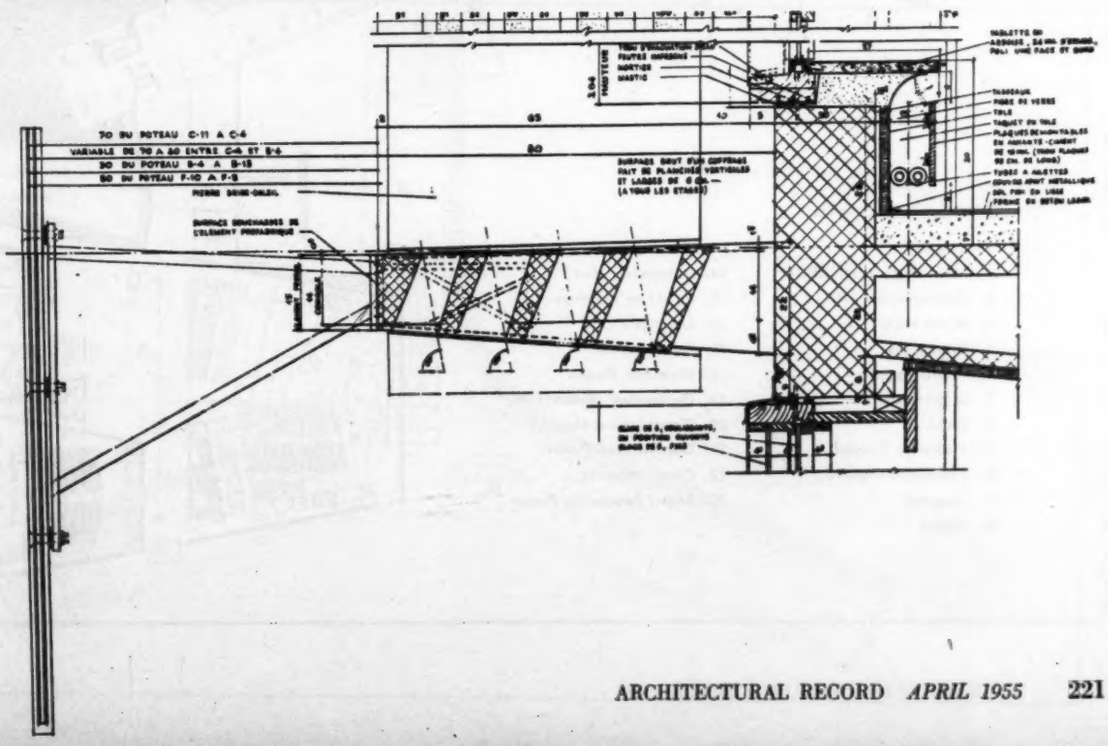
On the left page is shown a partial elevation of the southwest façade of the Secretariat, facing the piazza and garden. Also shown, in detail, is the newly designed entrance canopy for this side — an interesting form reminiscent of the canopy idea for the rejected design. Unlike the other Secretariat elevations — which have simple slab projections or vertical louvers for sun control — this façade features *brise-soleils* consisting of sheets of blue-green, heat-absorbing glass hung outside the slab projections. According to calculation, radiant heat from the sun will be absorbed by the outer glass and then dissipated into the air before reaching the building, thus cutting the heat load by more than half. A detailed section is shown below.

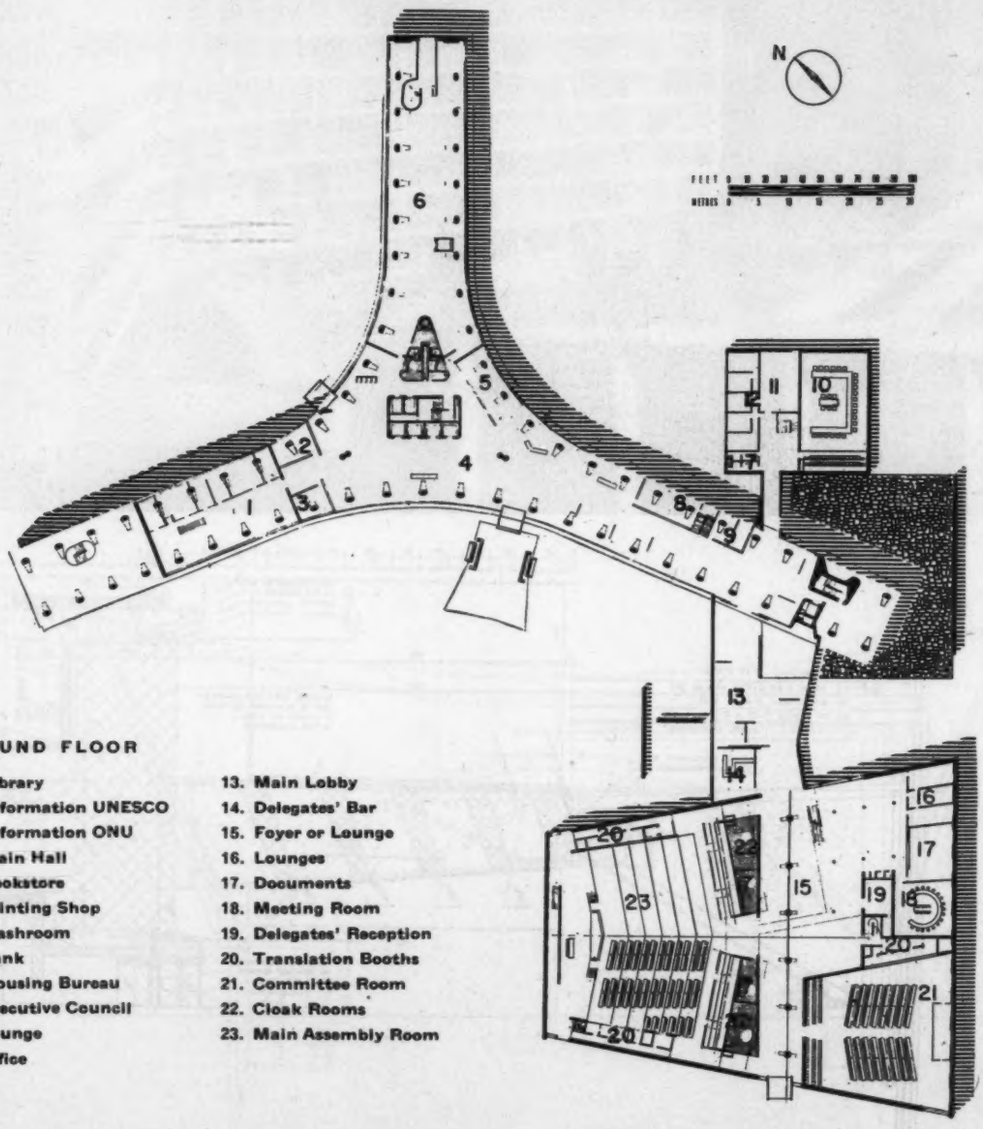




Although the Secretariat has been modified in various important aspects, its basic functional arrangement remains. The ground floor is devoted to public space and circulation; the next five floors are office space; the two top floors comprise staff social and recreational areas, including a restaurant, bar, cafeteria, library, roof gardens, etc. The Y-plan is no longer symmetrical and the wings have been straightened; the central arrangement of stairs, elevators and toilets has been simplified.

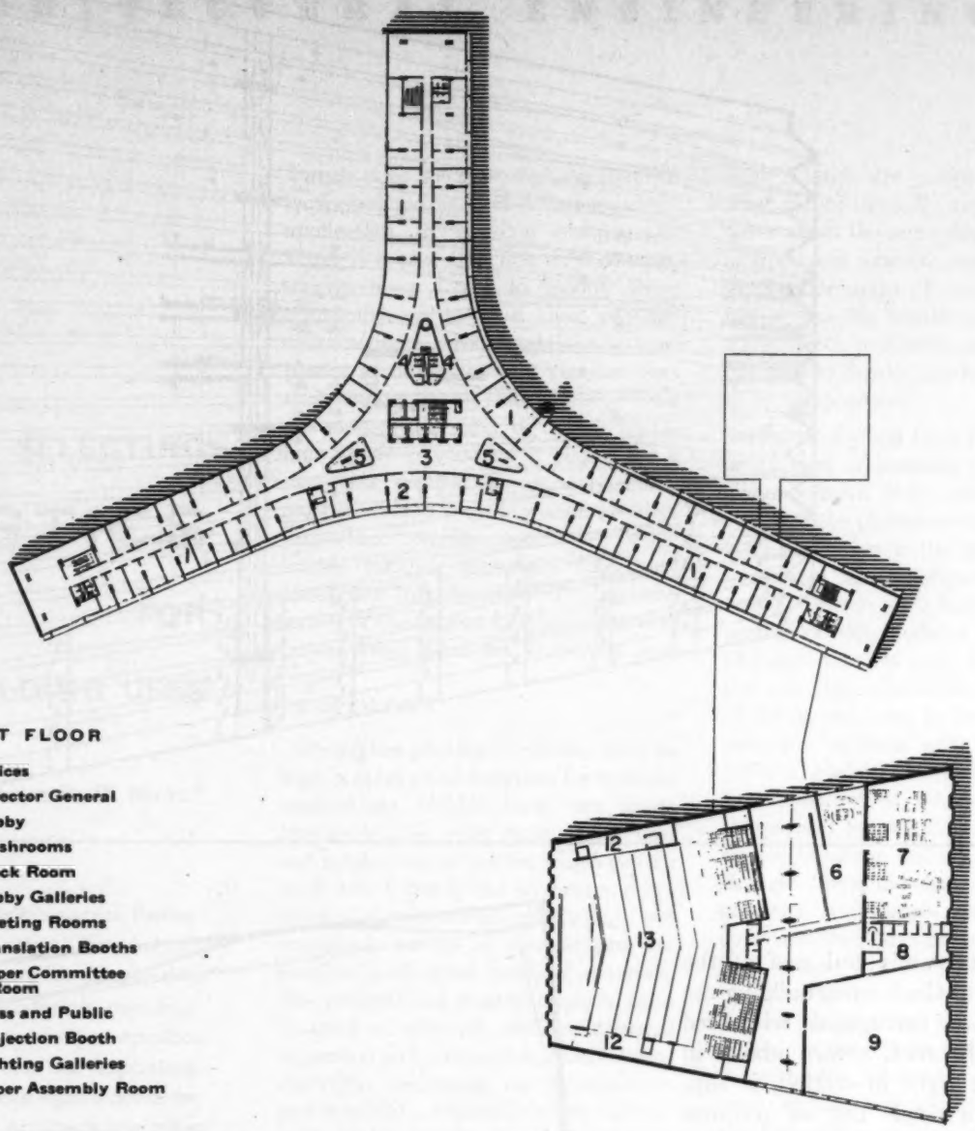
Unlike the UN scheme (and program) which separates delegates, staff, press and public into three more or less isolated groups, the idea here of the Main Lobby, or "*Salle des Pas-Perdus*," is to provide a functional hub where these groups may mingle — a center of gravity for the entire plan where all will pass.

The total cost will be about 2,000,000,000 francs, from which tax and custom exemptions of 300,000,000 francs can be deducted. Over 40,000,000 francs have been allotted for painting and sculpture, the details of which have not yet been announced.



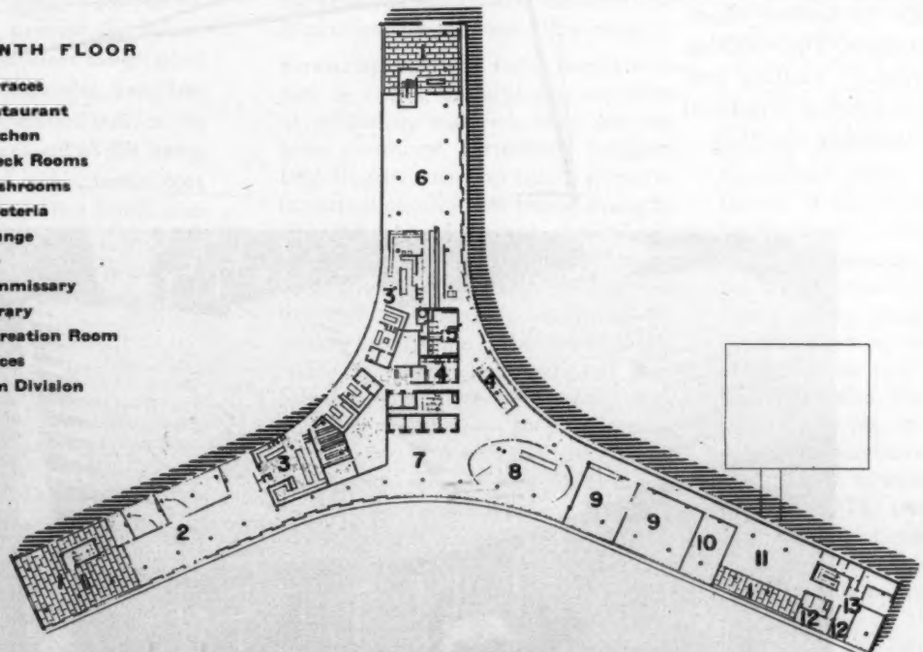
GROUND FLOOR

1. Library
2. Information UNESCO
3. Information ONU
4. Main Hall
5. Bookstore
6. Printing Shop
7. Washroom
8. Bank
9. Housing Bureau
10. Executive Council
11. Lounge
12. Office
13. Main Lobby
14. Delegates' Bar
15. Foyer or Lounge
16. Lounges
17. Documents
18. Meeting Room
19. Delegates' Reception
20. Translation Booths
21. Committee Room
22. Cloak Rooms
23. Main Assembly Room



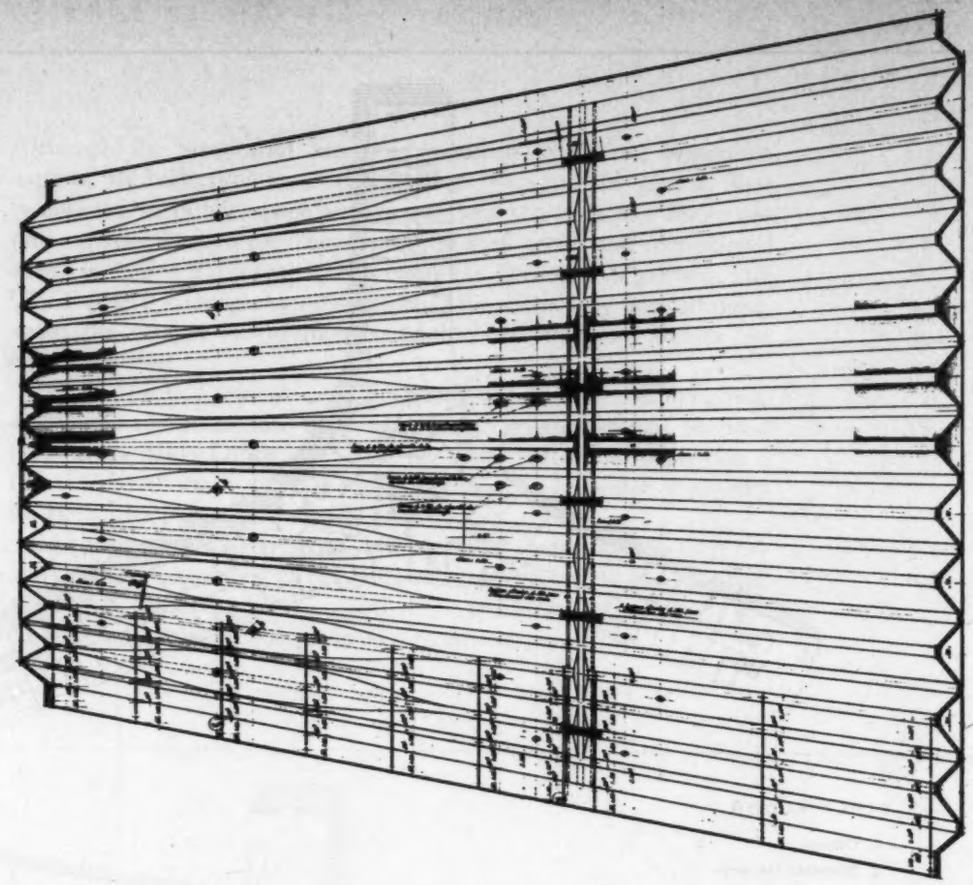
FIRST FLOOR

1. Offices
2. Director General
3. Lobby
4. Washrooms
5. Stock Room
6. Lobby Galleries
7. Meeting Rooms
8. Translation Booths
9. Upper Committee Room
10. Press and Public
11. Projection Booth
12. Lighting Galleries
13. Upper Assembly Room

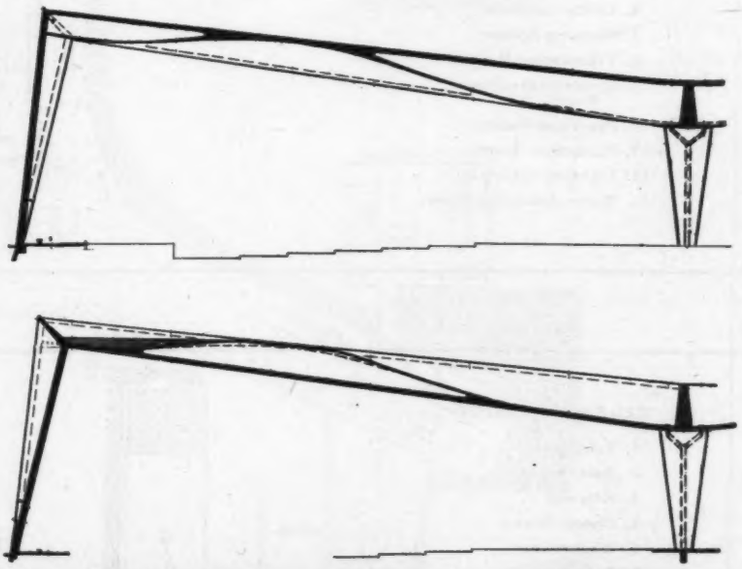


SEVENTH FLOOR

1. Terraces
2. Restaurant
3. Kitchen
4. Check Rooms
5. Washrooms
6. Cafeteria
7. Lounge
8. Bar
9. Commissary
10. Library
11. Recreation Room
12. Offices
13. Film Division



Both the end walls and roof of the Assembly and Conference building are of continuous corrugated reinforced concrete. The roof, shown above in plan and at right in section, is supported by a single row of columns under a lateral member that receives the corrugations. The folded frames are stiffened by an undulating horizontal membrane that rises to the top at mid-span and falls to bottom chord position at the supports. The resulting ceiling form is visually exciting and should result in outstanding acoustical qualities for the Assembly chamber.



SELECTING PLASTICS FOR BUILDING USES

By Albert G. H. Dietz *

Five years ago in this section Professor Dietz wrote that "The next five to ten years may be expected to bring out new materials, modifications of the old and further applications." While this has happened, perhaps more significant is the fact that architects are using plastics with much greater confidence and are more actively exploring new applications. To aid in the appraisal of plastics for building, present and future, this article discusses the physical properties of plastics, describes fabrication methods and outlines the types of plastics—all of this being related to actual and potential uses in buildings. The article also identifies the various building components that today are being made of plastics

* Professor of Building Engineering and Construction and Chairman, Plastics Committee, Massachusetts Institute of Technology, Cambridge, Mass.

THERE is no one type of plastic that can be formulated so that it has universal application to building components. While it is true that new ways are constantly being found to modify them chemically, or to alter their physical characteristics through addition of nonplastic material, the fact remains that their fundamental characteristics still govern how they may be used in building. Before considering a plastic for a particular application, an architect or engineer should know how their physical properties compare with the better known building materials, something about how they are fabricated, and the nature of the various families of plastics, factors which affect size, shape and cost.

PROPERTIES

Properties peculiar to plastics must be kept in mind when designing for building applications. Within their own limits plastics have a great range of physical and mechanical properties which govern their use. A few of the important properties of plastics are discussed briefly and compared, insofar as comparisons are possible, with other building materials. The properties of greatest importance in building are strength, stiffness, thermal expansion and contraction, thermal conductivity, maximum use temperature and durability, especially when exposed outdoors. Comparisons among different materials are of limited value, because each material has its own set of properties which make it useful or not, depending upon the application. This is as true of plastics as it is of any other material.

Strength. Strength varies from low to high depending on the plastic, any fillers or reinforcing materials used and embient conditions, particularly temperature. Chart 1 compares tensile strengths of various plastics with tensile strengths of metal, flexural strength of wood and compressive strength of concrete. As the chart shows, the relatively soft plastics like polyethylene are comparatively weak, whereas some of the high-strength, highly directional laminates and reinforced plastics, especially those incorporating continuous glass filaments, compare favorably with the high-strength metal alloys. Fishing rods, for example, fall in the high-strength categories; corrugated sheets are in the lower middle range. Similarly, if drawn into fine filaments, such plastics as nylon and vinylidene chloride are exceptionally strong. The run-of-the-mill molding plastics cover about the same range of strengths as wood and concrete. Compressive and flexural strengths of most plastics run higher than the tensile strengths shown. All strength properties are strongly influenced by fabricating methods as well as by composition.

Stiffness. By and large plastics are low in stiffness, or modulus of elasticity, as Chart 2 shows. Most rank below wood, although the phenolics may range fairly high, depending on the fillers employed. Laminates and reinforced plastics, of course, can run quite high if a high proportion of high-modulus reinforcement, like glass fiber, is used. Even these are less stiff than aluminum. Low stiffness of the material can be largely offset by designing sections with high inherent stiffness, such as ribs and corrugations; I-sections; arched, domed and vaulted shapes; and pyramids. Corrugated panels for luminous ceilings, dome-shaped skylights, pyramid-shaped light covers, sandwich wall panels with lightweight cores and thin faces are all examples of such design. The readiness with which plastics can be formed to almost any desired shape allows the designer wide latitude in the selection of forms to overcome the low inherent stiffness of plastics. Coupled with low specific gravity, the formability of plastics can provide highly efficient, lightweight structural shapes.

Thermal Expansion. Compared with most building materials the thermal expansion of plastics is high, as is brought out in Chart 3. This must be allowed for in design of building components, especially where plastics are used in conjunction with other materials, as when transparent sheets are set in window frames. If unduly restrained, they will buckle, break in tension, tear or otherwise fail. Here again, the ready formability of plastics is a help, because corrugations, bends, loops, fillets and other devices which accommodate dimension change can be used to offset expansion and contraction. Flexible pipe and tubing, for example, can be laid in a snaky pattern, or may have bends and U-turns incorporated to take up expansion and contraction. The tendency of plastics to creep under continuous load, and to lose their initial stresses when kept under a constant deformation, can be a help in

this respect. This is especially true of thermoplastics at elevated temperatures.

Creep is a disadvantage if allowed to become excessive, because it leads to bulging, sagging and warping, as in piping under excessive pressures and insufficient supports and sheets spanning too great distances. Creep is largely a question of stress levels. If stresses are kept within reasonable limits, creep need not be serious. Stress levels depend upon duration and temperature, especially with thermoplastics. Thermosetting materials are less subject to creep, especially when laminated or reinforced.

Thermal Conductivity. Compared to metals, plastics are all thermal insulators. Their rate of heat conduction, as shown in Chart 4, is in the same range as wood and concrete and depends on both the plastic itself and the fillers employed. When foamed, heat conduction is in the same range as other bulk-type insulators.

Temperature Tolerance. It is one of the most difficult aspects of any material to evaluate. The maximum temperature at which a material may be used is highly dependent upon the particular use, and in some instances higher temperatures can be tolerated than in others. Chart 5 presents suggested upper temperature ranges for continuous use. Intermittent use often goes higher. This is strongly influenced by the load of stress on the plastic, especially if thermoplastic. Creep at the upper temperatures may become excessive if stresses are high.

These temperatures are compared with temperatures at which metals and concrete lose about half their strength and wood chars. The silicones and fluorinated plastics are best. In the form of coatings, both of these are often used at still higher temperatures. Most building uses seldom require temperatures higher than about 180 F, even when exposed to the hot sun.

Any plastic can be destroyed by fire. Some burn readily, others with diffi-

PROPERTIES OF PLASTICS AND OTHER BUILDING MATERIALS

Tensile strength of plastics is comparable to wood and concrete, but increases to the range of metal alloys when reinforced or laminated with other materials or when drawn into fine filaments (as with nylon and vinylidene chlorides). Although plastics are inherently low in stiffness, when reinforced they range higher even than wood and concrete. Forming into structural shapes also increases stiffness. These same structural shapes accommodate dimension changes resulting from the high thermal expansion of plastics. Thermal conductivity is lower than concrete and about as low as wood, making plastics excellent insulators, especially when foamed. Although most plastics are damaged above about 200 F, many do not support their own combustion or burn with difficulty.

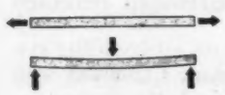


CHART 1—TENSILE STRENGTH

Strength of plastics varies from low to as high as strong alloys. Flexural (beam) strength is generally greater than tensile strength shown, and compressive strength is still higher. Filaments like nylon and saran have exceptionally high strength. Laminates and reinforced plastics utilizing fine glass filaments are strongest of all. Strength of molded materials is in the same range as concrete and wood. All strength properties are strongly influenced by molding or other fabricating methods. Thermoplastics are markedly influenced by temperature, especially in creep.

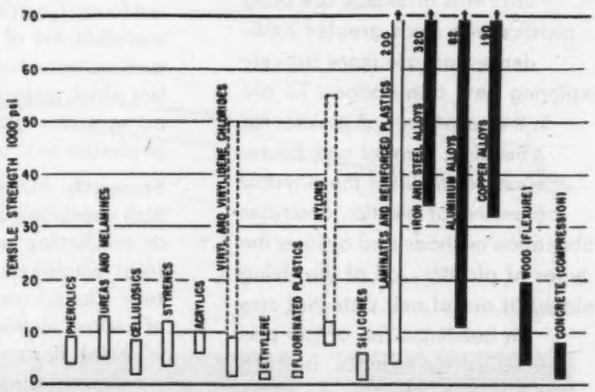
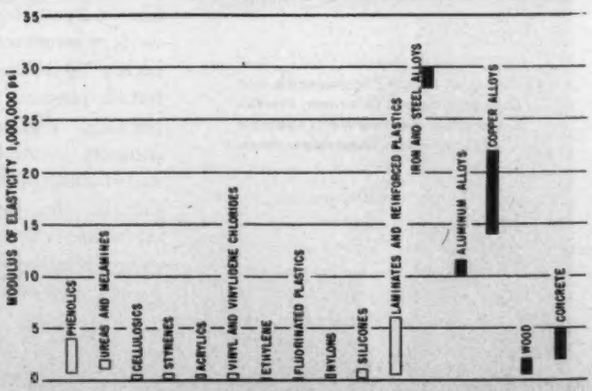


CHART 2—STIFFNESS

Stiffness of plastics, as measured by modulus of elasticity, is low compared with other construction materials, although laminates and reinforced plastics may range well above wood and concrete. Stiffness is enhanced by using structural shapes of high inherent stiffness. These include corrugations, vaults, domes, pyramids, sandwiches, ribs, I sections and other stiff sections. The ready formability of plastics makes such shapes practical and can lead to lightweight, strong, rigid forms.



culty, and some do not support their own combustion.

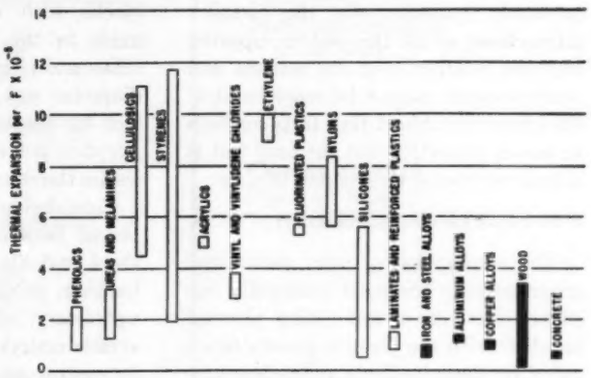
Transparence. Transparence ranges from completely opaque to a high value of close to 90 per cent for such plastics as acrylics. This covers the same range as completely opaque structural glass to water-white plate glass. Pigmentation, dyes, fillers and reinforcement all alter the light-transmission characteristics. The principal plastics used for light-transmission in one form or another are acrylics, vinyls, polystyrene, cellulosics, ureas and melamines, cast phenolics, and polyesters and epoxies, the latter mostly in the form of reinforced plastics. No plastic is as hard or scratch-resistant as glass, but toughness and resistance to breakage are generally considerably greater.

Durability. Long histories of use, especially of outdoor exposure, are lacking for most plastics but are available for some. The acrylics have been used for 20 years or more for aircraft canopies and windows, and some test specimens have been on exposure racks for periods of approximately 20 years. There is reasonably good assurance, therefore, that these materials will have good service lives.

The phenolics, likewise, have been in use, both indoors and outdoors, as moldings and laminated panels for periods well over 20 years, and reasonably good assurance of durability is available. Weathering may bring about fading and alteration of appearance, just as it does in wood, stone and other materials.

Other plastics are not yet old enough to have proved histories of durability outdoors, but the story is gradually developing. Some of the vinyl formulations, especially when pigmented with materials like carbon black to prevent penetration by the actinic rays of the sun, have given good accounts of themselves for periods of 10 to 15 years outdoors as gaskets and similar applications. Some of the styrene formulations appear to

CHART 3—THERMAL EXPANSION



Thermal expansion of plastics is generally high and is considerably higher than most other construction materials. The sheet stocks used in laminates and reinforced plastics help to reduce the thermal expansion and bring them into the range of aluminum and copper. In wood thermal expansion is less important than shrinking and swelling with moisture changes. High thermal expansion in plastics is offset by using shapes such as bends, corrugations and snaky configurations, by bedding in soft gaskets and by overlapping.

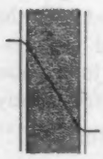
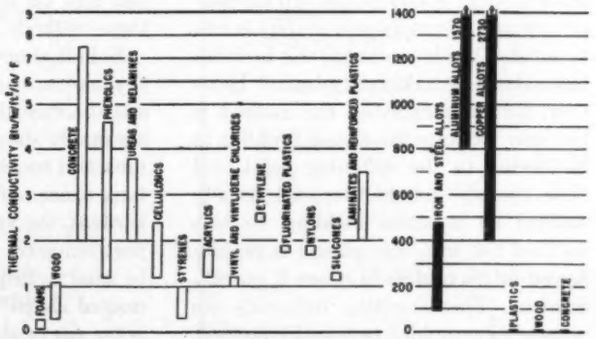
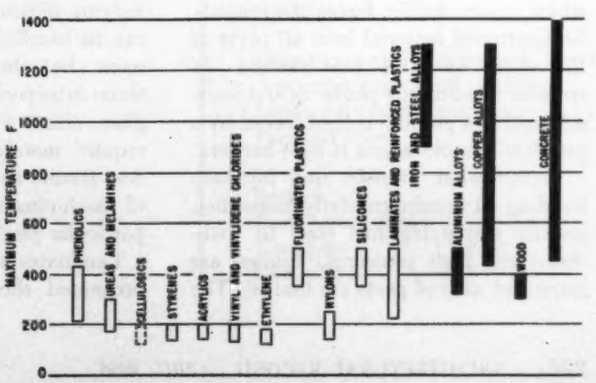


CHART 4—THERMAL CONDUCTIVITY



Thermal conductivity of all plastics is low compared to metals. For many plastics it is intermediate between wood and concrete, depending on the density of the plastic as influenced by fillers and fabricating methods. Plastic foams are low in density and have correspondingly low thermal conductivity. When used in wall sandwiches, the hard, dense facings bring about a moderate temperature drop, but the foamed cores develop a steep temperature drop. Some foams are unicellular and inherently resistant to vapor passage. Some can be foamed in place.

CHART 5—TEMPERATURE TOLERANCE



Maximum recommended temperatures for continuous exposure are relatively low but are generally well above the maximum temperatures likely to be met in building, even on surfaces exposed to the sun. Silicones and fluorinated plastics have highest temperature resistance. Laminates and reinforced plastics may be similarly resistant if made with resistant resins and fillers. All plastics can be destroyed by fire, some readily and others with difficulty. Temperatures shown for metals and concrete are those at which half of strength is lost; for wood the charring temperatures are shown.

behave similarly. Melamine may be expected to do well.

The silicones and fluorinated plastics should be outstanding in outdoor uses considering their water repellence and their proved ability to withstand temperature extremes, intense ultraviolet and infrared irradiation, ozone and electrical attack. Silicone rubber gaskets and expansion joints have stood up well.

Reinforced plastics and laminates, when made with the durable types of resins and with durable fillers, reflect the behavior of their constituents.

There is no absolutely reliable accelerated test which will accurately predict the behavior of plastics over a long period of years based upon short-time laboratory exposure. Weather is itself extremely variable, and the complex interactions of all the factors entering into the weather over the seasons and over the years cannot be reproduced in the laboratory. Short-time tests can help to screen materials, but the final test is actual use over a long period of time.

FABRICATING METHODS

The accompanying chart shows diagrammatically the most commonly employed methods of fabricating plastics, together with the plastics usually fabricated by these methods and representative articles produced by them.

Compression molding is the most versatile method of fabrication. All thermosetting and thermoplastic materials can be molded by this method; this includes laminates and reinforced plastics. However, for thermoplastics the method is too slow, because the charge first has to be heated to the softening point and then cooled, and so they are usually molded by injection molding. In this method the hot, soft plastic is rapidly forced into a cool mold where it quickly hardens. Thermosetting materials are compression-molded or transfer-molded. In compression molding the loose or pelletized material is put into a heated mold which, upon closing, forces the initially heat-softened material into all parts of the mold where it heat-hardens. In transfer molding the plastic is first heat-softened in a pot and is then forced by a ram into a mold where it heat-hardens.

Compression, transfer and injection molding all require carefully made dies, usually employing tool steel to withstand the high pressures. Presses are large and sizes of parts are limited. The largest compression-molded parts made at present are television cabinets, and among the largest thermoplastics are the breaker strips around refrigerator doors. Because of the cost of molds, items made by these methods must be produced in large numbers to be economical. For large quantity production these are the fastest and cheapest methods.

Continuous thermoplastic profiles, like tubing and architectural trim, are extruded. Although length is unlimited, maximum diameter is about 8 in. and usually runs much less. Wide, thin profiles, like corrugated shapes, are made in widths up to approximately 2 ft. Greater widths are in prospect.

Liquid plastics can be cast into molds and allowed to harden. The clear plastic blocks with various embedments are made in this fashion. Standard rods, tubes and blocks up to several inches in diameter and several feet long can be had for machining into finished parts. Acrylics, polyesters, phenolics and epoxies are the commonly used casting resins.

Calendering, or passing hot thermoplastic between heavy rolls to produce sheet and film, with or without fabric backing, produces most of the flexible upholstery, shower curtain stock and similar material. Film may also be made by casting on a moving belt or by extruding a cylinder, expanding by internal air pressure and slitting. Sheet and film up to 8 ft wide are made by these methods.

Bubble-shaped transparent parts like skylights are easily formed by stretching a heat-softened thermoplastic sheet over a suitably shaped opening in a vacuum tank and sucking the soft sheet into the tank space. After the plastic cools and hardens, the vacuum is released and the part removed. Positive air pressure can be used to help force the sheet into the desired shape. The only size limitation is the size of sheet available. Parts up to approximately 10 ft square are made.

All plastics can be machined, with varying difficulty. The softer materials can be handled on woodworking equipment, but the harder ones, especially those incorporating mineral matter like glass, either dull such tools quickly or require metalworking equipment. For best results the cutting edges and rates of machining must be adjusted for the particular plastic.

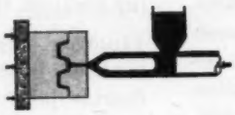
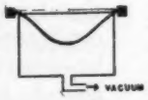
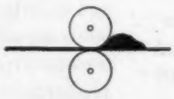
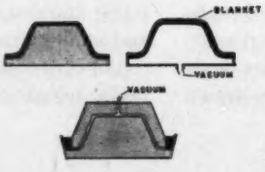
Laminates are made by stacking impregnated sheets and pressing heavy heated-platen presses at 1000 to 2000 psi and about 275 to 325 F. Decorative sheet, for example, has an overlay of melamine, the decorative printed paper or wood veneer, and a number of backup layers of phenolic-impregnated kraft paper. Press sizes usually limit these shapes to a maximum of approximately 4 by 8 ft.

Reinforced plastics are made in a variety of ways. The simplest is a hand layup of reinforcing mat or fabric on a male or female mold, with liquid resin sprayed, brushed or poured on. This may be densified by laying a rubber blanket over it and drawing a vacuum inside the blanket, applying fluid pressure to the mold, or both. Many small boat hulls are made this way. For smooth finish on both sides on the part, matching molds may be used of wood, sheet metal, stone plaster or reinforced plastic. Dry reinforcing mat and fabric are laid over the male mold, the female mold is closed, and liquid resin is introduced into the mold by pouring it into a trough around the periphery and sucking into the mold by vacuum. For large quantities of relatively small parts, like trays and boxes, regular matching steel molds in a compression press are used. The reinforcing is customarily roughly preformed to shape outside of the mold and simply dropped into the mold along with the required amount of liquid resin. Closing the mold forces the resin into all parts of the mold where it is combined with the reinforcement. Pressures and temperatures required are less than for regular thermosetting moldings, consequently lower capacity presses and less expensive molds can be employed.

Larger plastic parts can be made with reinforced plastics than with any other types. Sections for domes up to 50 ft in diameters have been constructed in this manner. For large-sized building components to be made in relatively small lots this method is most attractive.

As is true of all materials, plastics must be applied with discretion to the solution of any given problem. Their physical and mechanical properties and methods of fabrication, as presented in these pages, have an important effect on their applications in building. Properly used, they can add greatly to the range of materials at the disposal of the architect, but improper use can lead to unhappy results.

METHODS OF FABRICATING PLASTICS

		PLASTIC USED	TYPICAL PRODUCTS
COMPRESSION		Alkyds Epoxy molding Melamine Phenolics Polyester molding Silicones Urea (Thermoplastics)	Light diffusers Cabinets Drawer pulls and other hardware items One-piece drawers Small molded parts of all kinds
TRANSFER		Alkyds Epoxy molding Melamine Phenolics Polyester molding Silicones Urea	Fluorescent light supports Switch plates Dispenser housings Small molded parts of all kinds
INJECTION		Acrylics Cellulosics (except nitrate) Chloro-fluoro ethylenes Nylon Polyethylene Polystyrene Vinyl chloride Vinylidene chloride	Wall tile Housings Knobs Escutcheons Small molded parts of all kinds
EXTRUSION		Acrylics Cellulosics Fluorinated plastics Nylon Polyethylene Polystyrene Silicones Vinyl butyral Vinyl chloride	Corrugated sheet Pipe and tube Table and counter edging
VACUUM FORMING		Acrylics Polystyrene Vinyl chloride	Skylights Illuminated signs Canopies Shaped windows
MACHINING		All plastics	Turned knobs, buttons
CASTING		Acrylics Epoxies Phenolics Polyesters Styrene Vinyl acetate Vinyl chloride	Embedments Trim Rods and tubes
CALENDERING		Cellulosics Vinyl butyral Vinyl chloride	Floor covering Wall covering Film and sheet Upholstery
LAMINATING		Alkyds Melamine Phenolics Silicones Urea	Utilitarian and decorative sheet, counter tops, wall covering Shallow trays and pans Punched sheet
REINFORCING		Epoxies Polyesters (Phenolics)	Domes Corrugated sheet Canopies Kick plates

THE BASIC PLASTICS GROUPS HAVE A WIDE RANGE OF APPLICATIONS

All plastics can be divided into two major classes—thermoplastic and thermosetting. Thermoplastics can be softened any number of times by heating, and hardened by cooling. In general, the colder they become, the harder and stiffer they are. Some eventually become brittle when cold enough. Thermosetting plastics soften only once upon heating, then harden upon further heating and do not soften again. Changes in temperature thereafter have relatively little effect, although they may become harder and stiffer at low temperatures and soften slightly at elevated temperatures. They are truly plastic only once, and that is during the original fabricating operation.

THERMOPLASTICS

Acrylics. Used in lighting, outdoor illuminated signs, windows, skylights, and in a variety of molded and cast objects, especially those containing embedments like flowers, these are the clearest and most transparent of all plastics. They can also be pigmented and dyed to any desired color or hue. They can be cast as plain, figured or corrugated sheets in sizes up to approximately 10 ft square, or they can be molded. Frequently the sheets are vacuum-formed into bubbles, domes and similar shapes.

Cellulosics. These are characterized as a group by toughness (as exemplified by cellulose nitrate tool handles), transparence and ready colorability by pigments and dyes, ease of molding, ability to be formed into sheet and film, and a wide range of hardness and flexibility. Cellulose acetate and acetate-butyrate are extruded into a wide range of profiles such as edgings for table and counter tops, pipe and tube, and terrazzo divider strips. Cellulose forms the base for many lacquers.

Polyamides. Nylon is the common name for these plastics. They are most familiar as textiles but are becoming increasingly important for tough, wear-resistant rollers, bearings and strikers for low-noise hardware components and for similar parts such as cams and gears. Molded nylon is naturally cream color and fairly translucent; it can be colored with some difficulty by dyeing.

Polyethylene. Tubing made of this waxy-feeling, soft, tough, flexible material is finding considerable use for cold-water lines and has also been used for radiant heating lines embedded in concrete as well as for refrigerant lines in ice-skating rinks. It is used as sheet, film, tubing and molded articles where its flexibility and toughness recommend it in addition to its resistance to solvent attack, especially at ordinary temperatures. It softens at relatively low temperatures and is therefore not recommended for hot water or other applications involving similar temperatures, but it retains its flexibility at temperatures well below zero. It has been rather widely used for buried lawn and golf-sprinkling lines. Irradiation raises the heat-softening point considerably.

Polystyrene. Low moisture absorption and ease of molding recommend polystyrene for plastic wall tile and similar applications. It is also widely used in illumination. It can be transparent or it can be colored by pigments or dyes. Compared with the cellulosics and polyethylene, it is relatively hard and brittle, but it is easily molded when hot.

Polyvinyl butyral. In building applications this is mostly used as the coating on heavy-duty upholstery. Because of its toughness it is interlaid in safety glass.

Polyvinyl chloride. Transparent and pigmented sheets are widely used in illumination. Semi-rigid filled formulations provide floor tile and sheet. The rigid formulations are extruded and molded into pipe and fittings useful particularly for handling corrosive fluids at moderate temperatures and pressures. The softer flexible formulations are used for shower curtains, inflated objects and wall coverings and upholstery. As is true of the cellulosics, hardness, strength and flexibility are controlled by the addition of plasticizers. Resistance to breakdown under exposed conditions is aided by stabilizers and pigments.

Polyvinylidene chloride. This tough plastic is useful for film, is formed into fine filaments, woven into fabrics and flyscreen cloth, and is extruded as insulation on electric wiring. The extra chlorine in its composition makes it more fire-resistant than many other plastics.

Fluorinated plastics. Ethylene can be modified by incorporating fluorine or fluorine plus chlorine. Extreme resistance to highly corrosive conditions like hot concentrated acids results. In chemical plants in particular, pipe, gaskets and fittings are especially useful in handling corrosive materials. Inertness to moisture and outstanding electric characteristics are other attributes. The materials are stable at much higher temperatures than most other plastics, but retain flexibility at very low temperatures. Strength and toughness are only moderately high. Cost is the major limitation.

Copolymers. Many plastics can be copolymerized by combining several basic plastic types, much as metals are alloyed. Polystyrene is copolymerized with rubber and rubberlike polymers to produce parts tougher than polystyrene alone. Vinyl chloride is copolymerized with vinyl acetate to produce tough, flexible film and sheet. The cellulosics are copolymerized for increased toughness and moldability. Acrylics are similarly copolymerized. This phase of the plastics industry is developing rapidly, and a large variety of copolymers may be expected in the future. They should greatly expand the range of properties available.

THERMOSETTING PLASTICS

Phenol formaldehyde. Probably more different things are made of the phenolics than any other single plastic. Drawer pulls; molded cabinets for radio, TV and small portable refrigerators; molded, round-cornered cabinet drawers; ash trays; telephone handsets; switch plates

and switches; electric plugs; and a great variety of other objects are all molded of phenolics. A wide range of strength, toughness, electrical characteristics and resistance to various exposures is available depending on formulation. By and large phenolics are hard and inflexible. Like the other thermosetting resins, properties are largely controlled by various fillers: wood flour for ease of molding, asbestos for heat resistance, chopped fabric and filaments or cord for strength and toughness. Color is limited to relatively dark opaque colors, except the casting-type phenolic, which can be brilliant as in juke boxes and buttons.

The best waterproof adhesives are phenolic and the closely related resorcinol formaldehyde. Waterproof plywood and waterproof laminated wood, such as boat ribs, are made with them.

Melamine formaldehyde. The melamines have many of the same attributes as the phenolics plus the advantages of practically unlimited colorability, greater hardness, some better electrical characteristics, but greater cost. Their biggest application is as the hard, transparent waterproof finish on decorative laminates. They provide colorless waterproof adhesives having the same high quality as phenolics. The best plastic dinnerware is made of molded melamine.

Urea formaldehyde. Urea is used mostly for molded articles like light diffusers, dispensers and similar applications. It has the same colorability as melamine but is less costly. Its resistance to moisture is inferior to the phenolics and melamine, but it is entirely adequate for indoor use.

Alkyds. These thermosetting molding materials are used mostly for parts of electrical gear. They harden rapidly in the mold and therefore lend themselves to rapid production.

Polyesters. These resins, with the related allyls, make possible the production of large plastic parts on relatively simple molds, unlike the other thermosetting resins described above, all of which require heavy molds and presses. The polyesters are the base resins for large reinforced plastic parts such as the corrugated sheets, facings for sandwich panels, long adjustable louvers and similar parts which have begun to find their way into building. The polyesters begin as liquids and harden as they cure. They can therefore be cast, combined with fibrous reinforcements, and formulated into molding materials with various fillers like clay and silica.

Epoxies. These are similar to the polyesters in general use. They are superior in bonding quality to glass filament reinforcement, shrink less than polyesters upon curing, but are trickier to handle and more costly.

Silicones. Where resistance to temperature extremes, moisture, extreme exposure to sunlight or ultraviolet light, and outstanding electrical characteristics are required, the silicones enter into the picture. In building they form the basis of masonry waterproofing treatments and have found some use as soft rubber formulations for setting glass. They can be had as molding, coating, greases and oils. Their cost is high, but their durability recommends them for exposed conditions. Silicon rather than carbon is the basic element of silicones.

FOAMS

Foamed plastics provide lightweight bulk materials having good heat-insulating values. Foamed polystyrene boards, planks and blocks have found use as roof and refrigerator insulation. Cellular cellulose acetate is similar. Both have been used as cores of sandwich panels. Phenolics and isocyanates are often foamed in place, as in irregularly shaped refrigerator walls. Expanded polyvinyl chloride can be made hard, medium and soft, as in cushions. Other plastics, such as mixed copolymers of styrene and synthetic rubber, are also available as foams. Cost and ease of placement must be considered when comparing plastic foams with other lightweight materials. Cost is relatively high for many plastic foams, but other advantages, such as low moisture penetration or ease of foaming in place, may offset the cost factor.

LAMINATES AND REINFORCED PLASTICS

Laminates are becoming increasingly common in building for counter tops, furniture construction, wall covering such as dadoes, surfacing for doors, and a variety of other purposes. Reinforced plastics have become common as flat and corrugated translucent sheets for daylighting, illumination, facings for sandwiches and similar applications. The dividing line between these two classes of materials is hazy because both consist of combinations of synthetic resin and a reinforcing material in the form of sheet, fabric or mat. The term *laminate* customarily refers to combinations in which the resin is phenolic, melamine, silicone or other resin requiring relatively high pressures and temperatures to effect a cure. The reinforced plastics employ polyesters, epoxies or similar resins which can be molded at low pressures and may be cured at room temperatures. There is considerable overlap in the temperature-pressure combinations employed in making laminates and reinforced plastics.

Sheet stocks employed fall into the following categories:

Paper. This includes kraft, sulfite and various finished papers with printed designs for decorative purposes.

Fabric. For greater toughness and strength, fine-weave or coarse-weave cotton fabrics are preferred to paper but cost more. Nylon is still tougher and stronger.

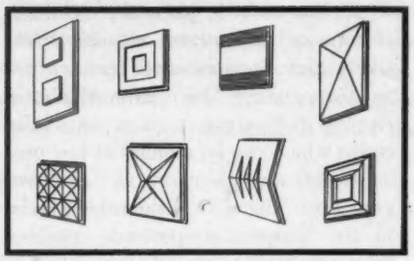
Asbestos. Felted and woven asbestos increases heat resistance.

Wood veneers. Fine wood veneers are widely used as decorative finish layers in laminates.

Glass filaments. The great majority of reinforced plastics, such as the corrugated and flat building sheets, employ glass fiber in some form. When drawn into filaments several hundred-thousandths of an inch in diameter, glass becomes phenomenally strong and exceeds high-strength metal alloys, especially on an equivalent weight basis. Glass filaments are chopped and made into mats or twisted into yarns and woven into fabrics; or the continuous filaments are used as parallel-laid bundles and ropes for rod reinforcement, or are woven into a variety of fabrics such as square-weave, satin-weave and unidirectional, in which most of the yarns run in one direction.

In building, the most common use for laminates is as decorative material incorporating a layer of wood veneer or printed paper overlaid with transparent water and alcohol-proof melamine and backed with phenolic-impregnated paper. If a sheet of aluminum foil is incorporated directly under the decorative sheet, the "cigarette-proof" variety is obtained. The aluminum conducts heat away so fast that a cigarette burning on the surface does not char it.

USES OF PLEXIGLAS



Advantages and limitations of Plexiglas together with assembly and installation details of Plexiglas lighting fixtures, dome skylights, partitions, signs and store display fixtures are presented in a 16-page, illustrated booklet. A page from the booklet illustrating some uses of Plexiglas is shown above. *Rohm Haas Co., Washington Sq., Philadelphia 5, Pa.**

LIMESTONE SPECIFICATIONS

A 20-page specification manual lists physical characteristics, grading, surface finishes and cut stone fabrication of Indiana Limestone. *Indiana Limestone Co., Inc., Bedford, Ind.**

BATHROOM PLANNING

•Information on area planning, fixture selection and design trends for single and multiple bathroom installations is offered in the 24-page, illustrated American-Standard bathroom planning manual. 25¢. *American Radiator and Standard Sanitary Corp., P.O. Box 1226, Pittsburgh, Pa.**

• Toilet compartments, shower and dressing rooms, shower units and hospital cubicles are described and illustrated in a 16-page catalog which also includes a color chart and specifications. *Mills Metal Compartment Co., 997 Wayside Rd., Cleveland 10, Ohio.*

DUCT FLOORS

Electrified reinforced concrete joist floors are described and illustrated in detail in a 16-page booklet issued by *The Fireproof Products Co., Inc., 138 Bruckner Blvd., New York 54, N. Y.*

**Other product information in Sweet's Architectural File, 1955.*

ALUMINUM PRODUCTS

• *Alcoa Aluminum in Architecture* contains information, illustrations and charts and includes a discussion of colored aluminum exterior surfaces and basic types of aluminum finishes available from *Aluminum Co. of America, 1501 Alcoa Bldg., Pittsburgh 19, Pa.**

• A 16-page brochure contains wrought aluminum alloy and casting alloy selection guides and explains aluminum fabricating and finishing methods. *Reynolds Metals Co., 2500 S. Third St., Louisville, Ky.**

• A wall chart listing aluminum products includes sizes, estimated weight per foot, alloys and a conversion table from old to new alloy designations. *Industrial Service Div. 10, Kaiser Aluminum & Chemical Sales, Inc., 1924 Broadway, Oakland 12, Calif.*

• The availability, properties, advantages and methods of joining and bending aluminum electrical bus conductors are detailed in a 12-page publication from *Kaiser Aluminum and Chemical Corp., 1924 Broadway, Oakland 12, Calif.**

CORK TILE FLOORING

• Design data, specifications, installation instructions and information on care and maintenance of cork tile are included in an 8-page catalog as well as full-color charts illustrating available patterns and colors. *Dodge Cork Co., Inc., Lancaster, Pa.**

INSTITUTIONAL KITCHENS

• A file folder consisting of specifications, drawings and illustrations of commercial refrigerators for hotels and restaurants describes normal temperature reach-in, reach-through and walk-in refrigerators as well as low temperature reach-in and walk-in models. *The C. Schmidt Co., Dept. A, 1712 John St., Cincinnati 14, Ohio.*

• Wall-type fixtures and greaseceptors for institutional kitchens are described in a 4-page folder. *Zurn Mfg. Co., Plumbing Div., Erie, Pa.*

• Specifications, descriptions and photographs of custom-built soda fountains and equipment are included in a 12-page booklet from the *S. & R. Soda Fountain Mfg. Co., 1314 Southern Blvd., New York 59, N. Y.*

SOIL-TESTING EQUIPMENT

Apparatus for engineering tests of soils, concretes, asphalt and construction materials as well as suggested laboratory layouts is shown in a 104-page catalog available from *Soiltest Inc., 4520 W. North Ave., Chicago 39, Ill.*

FLOOR, ROOF SLABS

• Properties and uses of monolithically cast floor and roof slabs, are listed in an 8-page catalog which also includes diagrams of basic structural and mechanical details. *The Flexicore Co., Inc., 1932 E. Monument Ave., Dayton 1, Ohio.*

PAINT SPECIFICATION MANUALS

• *Painting specifications* covering all types of exterior and interior work on residential, institutional, commercial and industrial construction are presented in the 8th edition of the *Pratt & Lambert Architectural Specification Manual.* In addition to general conditions and master specifications, the book includes color planning, color relationships, safety color codes and light reflection. *Pratt & Lambert, Inc., Architectural Service Dept., 3301 38th Ave., Long Island City 1, N. Y.* (or Buffalo, Chicago or Fort Erie, Ontario.)

• A 12-page paint catalog presents a complete line of paint, texture paint, joint cement and tape, sprackling putty, paint and varnish removers and liquid brush cleaner. *Luminall Paints, Div. of Nat'l Chemical & Mfg. Co., Chicago, Ill.*

(Continued on page 310)

PREFABRICATED CONCRETE WALL PANELS CUT COSTS IN SWEDEN

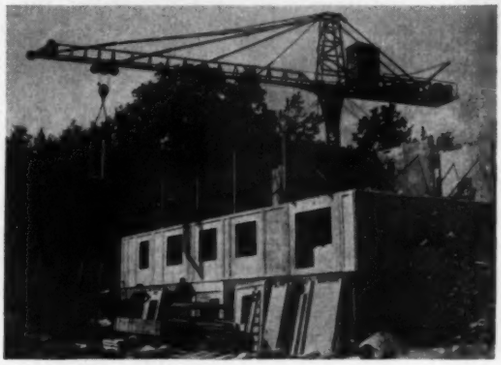
Construction time and costs are being cut in half in Sweden by a new method of prefabrication in which both inner and outer concrete wall panels are completely assembled in various designs and sizes in a factory or at the building site ready for installation.

Outside walls, in which door and window moldings are pressed, consist of two layers of concrete separated by a rockwool insulation. The high insulating properties of these outside walls make it possible to use panels thinner than conventional walls and thus save considerably on floor space. Triple-pane windows also provide adequate insulation against the winter cold.

Inside walls are only 4 in. thick, except where high sound insulation is required, where they measure 5 in. They are covered directly with special plastic paints with a synthetic putty content.

The wall panels, prenumbered according to the design of the architect, are lifted into place by means of traveling cranes and fastened together and to floors by tenons and mortices. The panel numbering system saves much time in assembly, since a supervisor equipped with an ultra-shortwave transmitter gives instructions as to placement.

The "Nabohus" method, at present being put to the test in municipal housing projects in several Swedish cities, is expected to produce "more housing units at lower rents," says Stockholm architect Hans-Ancker Holst, who conceived the system. Mr. Holst points out that the method is as well suited for schools, hospitals and similar structures as it is for houses.



CONCRETE ARCHES SPAN 194 FT IN LONDON GARAGE

Reinforced concrete arches which span 194 ft in a London bus garage make possible an area of 73,350 ft entirely unobstructed by internal columns. Built for the London Transport Executive, which needed a covered parking area for 200 double-decker buses, Stockwell Garage is divided into nine 42-ft bays along its 392-ft length.

Reinforced concrete vaults, which cantilever from the arch ribs, form the main roof covering. A natural lighting area 140 ft long by 14 ft wide opens into each bay. Reinforced concrete ribs 6 in. wide on 10-ft centers span the lighting area to support out-of-balance loading resulting from snow or other loads and thus prevent torsion on the main arch ribs.

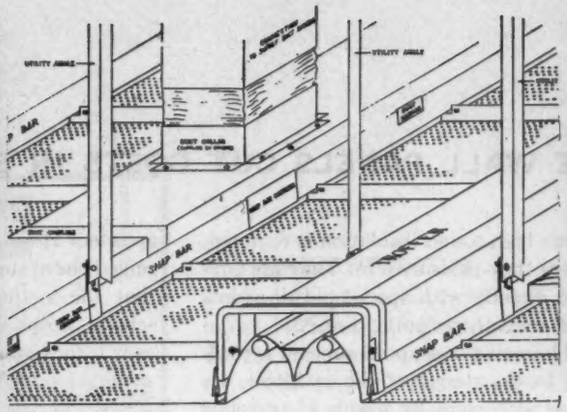
The only longitudinal tie between the arch frames is an H beam along the sides of the garage, the location of which was determined by a headroom of 16 ft. Within the H beam are concealed a 9-in. cast-iron rain disposal pipe, a 6-in. sprinkler main, compressed air and water ring mains and electric lighting and clock conduits. From it also are hung the main entrance doors and those to the docking area. Expansion joints are provided in the H beam on each side of the garage.

Architects: Adie, Button & Partners, London, in association with Thomas Bilbow, chief architect of the London Transport Executive

The arch ribs, 26 in. wide, are 7 ft deep at the crown, increase to 10½ ft at the H beam level and decrease again to 6 ft at ground level. Below floor level the rib sections are widened out to provide increased stability. Each of the two end frames is further strengthened by an external member 18 in. wide connected to it by 12-in. slabs top and bottom to form a reinforced concrete box 8 ft wide. This section is designed to withstand any out-of-balance thrust arising from live loads.

The arch ribs are carried on pile foundations sustaining a load of approximately 400 tons. Where they sit on the pile caps, special hinges are provided, and the thrust arising from arch action is taken by steel ties connecting opposite pile caps.

Vertical glazing fills the spandrels of the barrel arches to supplement the natural lighting provided by the open roof areas. Artificial lighting comes from fluorescent fittings along the arch of the main ribs.



CEILING INTEGRATES HEATING, VENTILATION, ACOUSTICS, LIGHTING

The American Telegraph and Telephone Company's new building in White Plains, N. Y., gets its heating, ventilation, acoustical treatment and lighting, and can get its air conditioning, from one ceiling unit. Aluminum ducts, integrated with the ceiling construction and flush with the bottom of the ceiling, have bottoms which become radiant panels as heated air is passed through them. The same air continues the heating job when it is discharged into rooms through the holes in standard Simplex acoustic panels.

Air enters the ducts at a temperature about 30 F higher than that desired at the outlets and has lost half its differential by the time it reaches the panel holes. There is no concentrated draft from the ceiling, because of the diffused discharge of air and the fact that the radiant panel effect cuts down on the amount of room air that is required. Return air is picked up at registers above the windows and behind slots in the ceiling and carried back in return ducts between the ceiling and the floor slab above.

Snap bars attached to lengths of utility angles form the only framework for the suspended ceiling. Anodized aluminum duct bottoms and acoustic panels and recessed light troffers are snapped into the bars. The acoustic panels, occupying about 75 per cent of the ceiling area, are topped by 1¼-in. rockwool pads wrapped in flame-proof envelopes to provide a noise reduction coefficient of 65 per cent.

Lorimer and Rose, New York, were architects and engineers. Richard P. Goemann, Head of the Mechanical Dept. of this firm, designed the system while in the same position with John D. Dillon, consulting engineer.

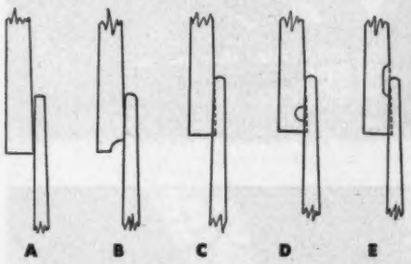
PAINT BLISTERING REDUCED BY WATER REPELLENTS

Paint blistering as a result of the entry of rainwater through wood siding can be minimized or eliminated by such methods as applying a water repellent and dressing the back of standard-pattern siding. Results of laboratory tests conducted at the Forest Products Laboratory, Forest Service, U. S. Department of Agriculture, show that rainwater is as important a source of paint difficulties in wood-sided houses as water that accumulates by cold-weather condensation. They are reported by L. V. Teesdale, engineer, under the title, "Water Repellents Reduce Rain-caused Paint Blistering on Wood Siding."

Some rain has always got behind siding, driven in by the wind or drawn up in back by capillary action, even in old houses which were protected with good overhangs and narrow-pattern siding. However, there was little trouble with paint blistering in old houses because the paint used was much less sensitive to moisture than modern paints. Many modern houses show paint failure, according to Mr. Teesdale, because they are designed with no overhang at the gables and very little at the eaves and are coated with moisture-sensitive paints.

The Laboratory, in coöperation with the Weyerhaeuser Timber Company, set up a number of tests at Madison, Wis., to simulate various causes and effects of paint failure. Panels of 8- by 7/16-in. standard-pattern bevel siding were assembled so that both the back and the front could be observed and then were examined before and after treatment and under exposure to spray and to wind-driven spray. Laps were varied in the panels to determine the effect of overlap on wetting, and several modified patterns were tested to determine the effect

(*Continued on page 246*)

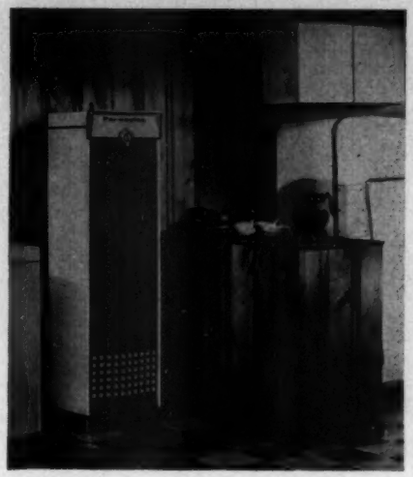


Siding patterns tested in exploratory studies: A — Standard pattern. B — Standard pattern with drip. C — Back-dressed. D — Horizontal groove (back-dressed). E — Wide horizontal groove (back-dressed).

Limited overhang of gable end of house shown at right did not prevent frequent wetting from rains that damaged the siding and paint

HOME WATER HEATER IS BODY- AND COLOR-STYLED AS "VISIBLE" APPLIANCE

The home water heater has been dressed up to move out of the cellar and into the kitchen or utility room where it will be closer to the many appliances which are putting such an increasingly heavy load on it. The kitchen installation at right shows the new Permaglas PG Deluxe gas water heater, which features a removable front panel of aqua, a new square look, "Eye-Hi" temperature control in the copper-toned hood, and a new closed-end tank structure which lowers the over-all height of the heater. Available in 30-, 45- and 65-gal models, the heaters incorporate all the features of the Permaglas line. A 10 per cent increase in hot water delivery in the 30-gal model was accomplished by boosting its heat input rating to 33,000 Btu per hr.



The cutaway drawing to the right shows one of the new PE Deluxe electric water heaters, which are styled just like the gas heaters except for the "Eye-Hi" control, which on these models is purely decorative because of utility regulations. A flexible wrap-around heating element, which can be removed or inserted in a matter of minutes, extends to the electric line the Heetwall principle of heat-reflecting action against the tank wall. The PE Deluxe heaters are available in 50-, 66- and 80-gal models. The conventional lines of Permaglas heaters feature improvements also, the most important of which is rear flue take-off. *A. O. Smith Corp., Milwaukee 1, Wis.*

YEAR-ROUND BASEBOARD HEATING-COOLING SYSTEM

A year-round baseboard heating-cooling system was exhibited to architects, engineers and contractors for the first time in January at the International Heating and Ventilating Exposition in Philadelphia. The new system incorporates a chiller that provides chilled water through the same baseboard facilities as those used for heating. A central blower distributes a controlled quantity of air via built-in ducts which extend parallel under the entire length of each baseboard element. The air circulates around the cooled pipe and fins and flows out of the top aperture and over the wall areas. The boiler, which can be operated independent of the system in the summertime, supplies hot water to the baseboard pipe in the winter. Note that convection and radiation apply in winter. *The Vulcan Radiator Co., 775 Capitol Ave., Hartford, Conn.*

Hot-water Boiler and Water Chiller Combined in One Unit

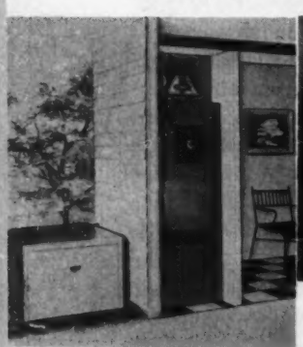
A gas-fired hot-water boiler and water chiller combined in one unit has been designed for year-round forced-water air conditioning systems in medium-sized homes and small commercial structures. Engineered for the Hydraline central heating-cooling system, the Hydraline boiler-chiller combination takes up only 2 sq ft on the floor in its vertical position and is 66⅜ in. high. If desired, the package can be placed with chiller and boiler side by side, in which position the unit measures 36 in. high by 48 in. wide by 24 in. deep. The unit is self-contained and is shipped fully assembled ready for connection. *Hydraline Products Div., Borg-Warner Corp., 18538 Mack Ave., Detroit 36, Mich.*

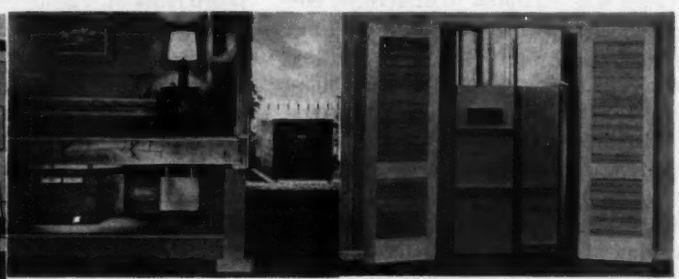
Integrated Office Furniture

"Office-ettes," integrated modular office furniture, can be assembled in an unlimited number of arrangements. Made of steel or wood, with linoleum or vinyl tops and finished in standard or decorators' colors, this equipment can save up to one-third of the floor space in an office, says manufacturer. "Partition-ettes" provide semi-privacy for supervisory personnel. *Arnot-Jamestown Div., Aetna Steel Products Corp., Jamestown, N. Y.*

CHALKBOARD PARTITION SERVES MANY PURPOSES

A *multi-purpose chalkboard partition* has been produced which serves also as a projection screen, bulletin board and sound barrier. Effective in visual education, the *Armorply* panels can combine large screen projections, illustrations held to the surface by magnetic disks and chalk-written explanations, as shown above in the first installation at the New York Training Center of International Business Machines. The incombustible wall panels are constructed of a 2-in.-thick gypsum core to which is bonded on one side a sheet of 18-gauge steel with porcelain surface and to the other side a sheet of paint-grade steel. They are anchored to floor and ceiling with metal angles. After many tests with color, it was found that a rose-tinted gray surface served best in the I.B.M. classroom both for esthetic and for practical reasons. *U. S. Plywood Corp., 55 West 44th St., New York 36, N. Y.*





Chrysler Carrier Coleman

RESIDENTIAL AIR CONDITIONING SYSTEMS

• The *Airtemp Spacesaver* provides air conditioning with no loss of floor space, requiring only 14½ in. of additional height above a forced air furnace. A water-cooled condenser located outside the house, in the garage or in a crawl space or basement is connected to a new "V" coil above the furnace. *Airtemp Div., Chrysler Corp., 1600 Webster St., Dayton 1, Ohio.*

• *Carrier's Conversion Weathermaker* model for 1955 is designed for addition to horizontal forced warm air furnaces, usually installed in attic or crawl spaces of basementless homes. The coil package inserted in the ductwork at the discharge end of the furnace adds cooling, dehumidifying and air cleaning. A weatherproof and tamperproof air-cooled refrigerating unit installed in the yard eliminates water use. *Carrier Corp., Syracuse, N. Y.*

• The *Blend-Air heating-cooling system* distributes air that is balanced properly to supply the temperature requirements of every room in a house. The key is a vertical cooling unit used in conjunction with a plenum cooler mounted on top of a furnace. The vertical cooler is started by a thermostat and sends cool air through its own supply duct system to mix with air from the furnace ducts in proportionate amounts in each room. *Coleman Co., Wichita, Kan.*

Automated Plants Possible With Central Control System

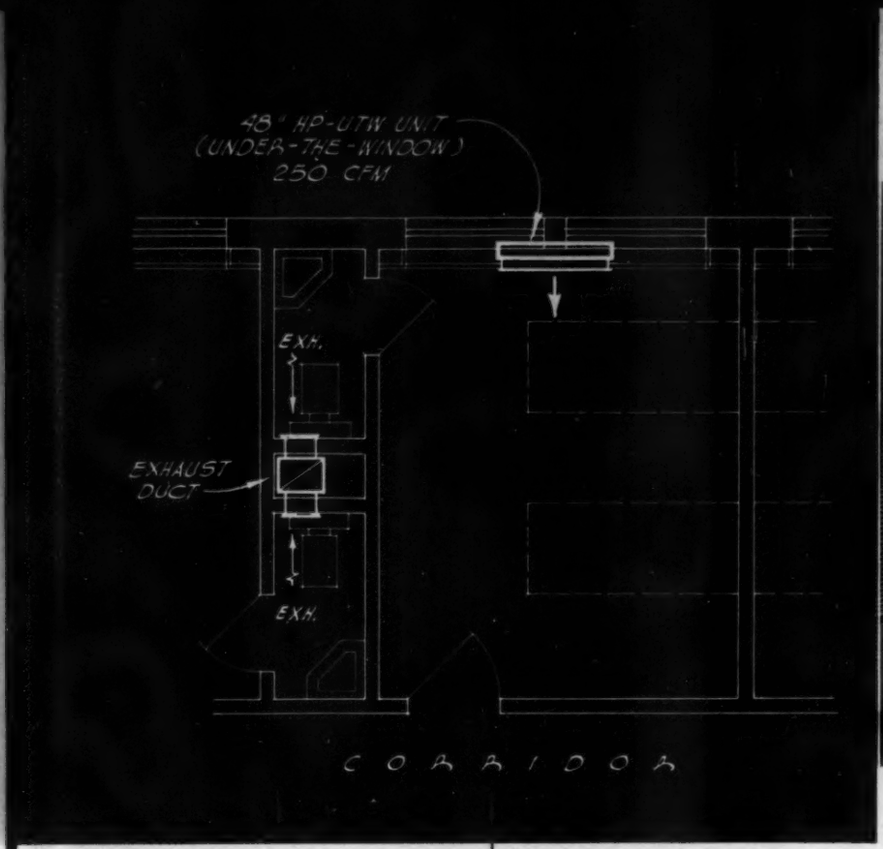
A *central control system* automatically switches on or off up to 40 groups of remote operations including lights, heating and air conditioning, signs, signals, pumps, valves and motors and starting and stopping production line machinery in automated plants. The system uses carrier current signals and operates over existing electrical conduits so that separate transmission wire does not have to be installed.

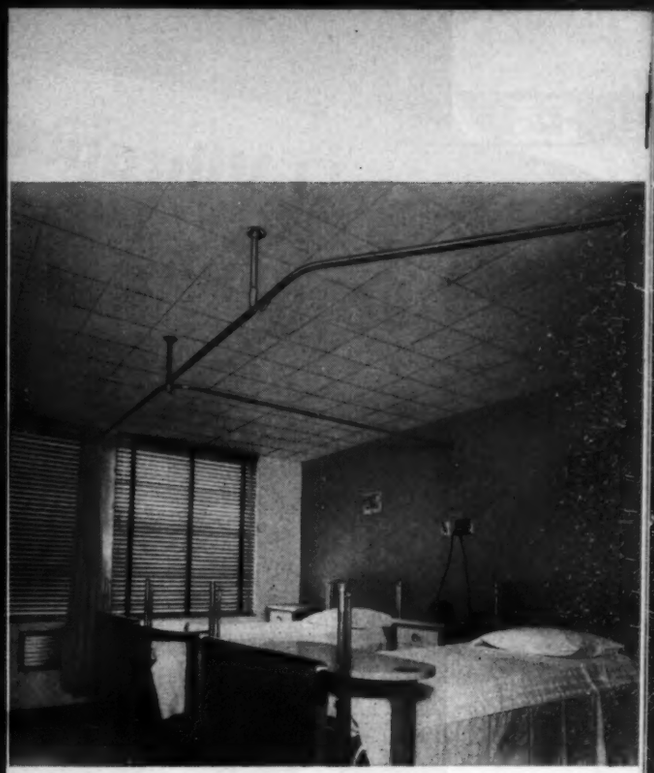
The basic components of the system are its central operations panel, transmitter and coded relays. The central operations panel is the source of the system's "commands." A supervisor can check on his many remote-controlled services merely by glancing at the indicator lights on the panel. He can also depart from the preset program on the panel, to stop motors in a particular section of the plant or turn on facilities for a special night shift. Through relays and an electronic transmitter, the "command" pulses are sent to coded relays, which reject all pulses other than those to which they are preset to respond. The system is designed so that it can be expanded easily at any time with additional circuits, pluggable relays and pluggable programming units. *International Business Machines Corp., 590 Madison Ave., New York 22, N. Y.*

Galvanized Steel Roof Deck

Galvanized steel roof deck, designed specifically for use with Stran-Steel framing, is nailed to joists and can be topped immediately with lightweight insulation board and built-up roofing. Total weight of the system, including insulation, is less than 3 psf. The decking, which has great strength-to-weight ratio, is 24 in. wide and comes in lengths of 8 ft 2 in., 10 ft 2 in. and 12 ft 2 in. *Great Lakes Steel Corp., Stran-Steel Div., Detroit 29, Mich.*

(More products on page 258)

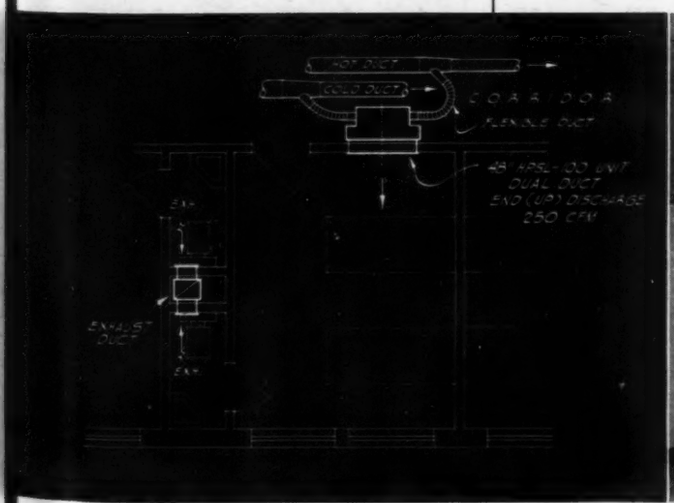


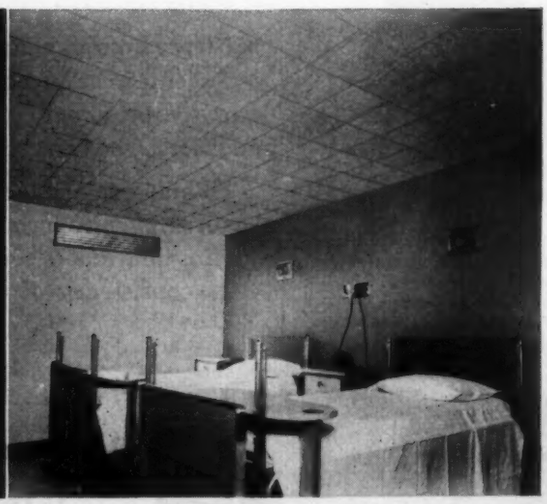


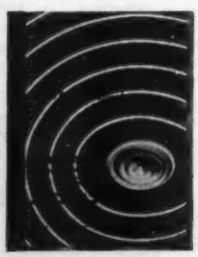
All-air high velocity units for **hospital air conditioning**

In successful use in many hospitals throughout the country, Anemostat HV round, square and straight line units are adaptable to a wide variety of architectural designs. Diagrams and photographs show typical applications of straight line units.

The All-Air High Velocity system of draftless air distribution offers many important advantages for hospital air conditioning. High velocity units, used with smaller than conventional ducts, save space and money. They substantially reduce sheet metal required, can be installed faster, with less labor. Since there are no coils in All-Air HV units, clogging and odors are eliminated. They operate entirely with air processed in the main equipment room; no fans, filters or electric motors are needed with All-Air HV units.



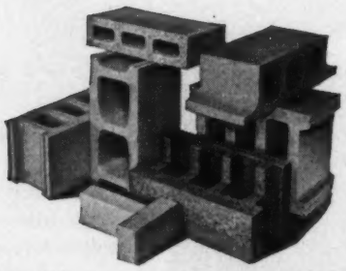




• ***For latest data on All-Air High Velocity units,*** write on your business letterhead for ***new Selection Manual 50*** to Anemostat Corporation of America, 10 E. 39 Street, New York 16, N. Y.

Lightweight Vibrapac Block adds Dignity and Beauty

Choose from a Wide Variety of Structural Shapes and Sizes



Modular dimensioning of all standard VIBRAPAC Block permits precision construction . . . "makes everything fit" . . . saves time and money on installation of door and window units or other standard fixtures and equipment.

Lightweight VIBRAPAC Block for interiors offers unusual opportunities for creative beauty in architecture. You can plan a pleasing variety of distinctive patterns from standard VIBRAPAC Block. You can specify various color pigments to be added to the concrete mix for walls of dignity and beauty. The decorative beauty of Lightweight Vibrapac Block, with its many textures, styles and colors, lends an atmosphere of simple dignity to any type of construction.

While attaining these pleasing effects with VIBRAPAC Block, you also gain economies in initial cost and future maintenance. You by-pass costly wall finishing and decorating. You attain ideal architectural harmony through consistency of exterior and interior VIBRAPAC concrete masonry.

Soffit Filler Block floors and roofs add long-term structural security, safety and beauty. In addition, complete VIBRAPAC Block construction means firesafety, self-insulated walls, floors, ceilings, roofs; sound-deadened walls and floors; permanent protection from termites, dry-rot, rodents, damp-rot; storm stability, and long life. Ask the VIBRAPAC Concrete Block Plant nearest you for literature and helpful data; or write directly to BESSER COMPANY, *Box 173*, Alpena, Michigan, U. S. A.

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World's Largest Manufacturer of Concrete Block Machinery

THERMAL INSULATION—9: U Factors for Masonry Walls

By Laurence Shuman, Consulting Engineer

Legend:

Interior Finishes

- **A** No finish, plain wall
- **B** Plaster, ½", direct on masonry
- **C** Metal lath and plaster
- **D** Gypsum board, ⅜", decorated
- **E** Gypsum lath, ⅜", plastered
- **F** Insulation board, ½", plain or decorated
- **G** Insulation board, ½", plastered
- **H** Insulation board, 1", plastered

Furring Space Treatment

- **1** No furring
- **2** 1" nominal furring, faced with ordinary materials
- **3** Same, faced with reflective coated paper 1 side
- **4** Same, faced with aluminum foil 1 side
- **5** Same, space filled with flexible insulation

Masonry Material	Masonry Thickness	Furring Space	Interior Finish A	B	C	D	E	F	G	H
Stone	8"	1	.70	.64	..	..	..	..	..	..
		2	..	..	.38	.37	.35	.25	.24	.17
		3	..	..	.28	.28	.26	.20	.19	.15
		4	..	..	.24	.23	.22	.18	.17	.13
		5	..	..	.23	.23	.22	.18	.17	.14
	12"	1	.57	.53	..	..	..	..	..	..
		2	..	..	.34	.33	.31	.23	.22	.17
		3	..	..	.25	.25	.24	.19	.18	.14
		4	..	..	.22	.22	.21	.17	.16	.13
		5	..	..	.22	.21	.21	.17	.16	.13
	16"	1	.49	.45	..	..	..	..	..	..
		2	..	..	.30	.30	.29	.22	.21	.16
		3	..	..	.23	.23	.22	.17	.17	.13
		4	..	..	.20	.20	.20	.16	.15	.12
		5	..	..	.20	.20	.19	.16	.16	.13
	24"	1	.37	.35	..	..	..	..	..	..
		2	..	..	.25	.25	.24	.19	.18	.14
		3	..	..	.20	.20	.19	.16	.15	.12
		4	..	..	.18	.18	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.15	.14	.12
Cut stone veneer plus hollow block	4" stone 8" gravel block	1	.47	.44	..	..	..	..	..	..
		2	..	..	.30	.30	.28	.21	.21	.16
		3	..	..	.23	.23	.22	.17	.17	.13
		4	..	..	.20	.20	.19	.16	.15	.12
		5	..	..	.20	.20	.19	.16	.16	.13
	4" stone 8" cinder block	1	.36	.34	..	..	..	..	..	..
		2	..	..	.25	.25	.24	.19	.18	.14
		3	..	..	.20	.20	.19	.16	.15	.12
		4	..	..	.18	.17	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.14	.14	.12
	4" stone 8" light-weight block	1	.32	.30	..	..	..	..	..	..
		2	..	..	.23	.23	.22	.18	.17	.14
		3	..	..	.18	.18	.18	.15	.14	.12
		4	..	..	.16	.16	.16	.13	.13	.11
		5	..	..	.17	.17	.16	.14	.14	.11
Cut stone veneer plus poured concrete	4" stone 6" concrete	1	.63	.58	..	..	..	..	..	..
		2	..	..	.36	.35	.33	.24	.23	.17
		3	..	..	.26	.26	.25	.19	.19	.14
		4	..	..	.23	.23	.22	.17	.17	.13
		5	..	..	.22	.22	.21	.17	.17	.13
	4" stone 8" concrete	1	.57	.53	..	..	..	..	..	..
		2	..	..	.34	.33	.31	.23	.22	.17
		3	..	..	.25	.25	.24	.19	.18	.14
		4	..	..	.22	.22	.21	.17	.16	.13
		5	..	..	.22	.21	.21	.17	.16	.13

Masonry Material	Masonry Thickness	Furring Space	Interior Finish A	B	C	D	E	F	G	H
Cut stone veneer plus hollow tile	4" stone 6" tile	1	.37	.35	..	..	..	..	..	..
		2	..	..	.26	.25	.24	.19	.18	.14
		3	..	..	.20	.20	.19	.16	.15	.12
		4	..	..	.18	.18	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.15	.14	.12
	4" stone 8" tile	1	.36	.34	..	..	..	..	..	..
		2	..	..	.25	.24	.24	.19	.18	.14
		3	..	..	.20	.20	.19	.16	.15	.12
		4	..	..	.18	.17	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.14	.14	.12
Hollow concrete blocks, gravel aggregate	8"	1	.56	.52	..	..	..	..	..	..
		2	..	..	.33	.33	.31	.23	.22	.16
		3	..	..	.25	.25	.24	.18	.18	.14
		4	..	..	.22	.22	.21	.17	.16	.13
		5	..	..	.21	.21	.21	.17	.16	.13
	12"	1	.49	.46	..	..	..	..	..	..
		2	..	..	.31	.30	.29	.22	.21	.16
		3	..	..	.23	.23	.22	.18	.17	.13
		4	..	..	.21	.20	.20	.16	.15	.12
		5	..	..	.20	.20	.20	.16	.16	.13
Hollow concrete blocks, cinder aggregate	8"	1	.41	.39	..	..	..	..	..	..
		2	..	..	.27	.27	.26	.20	.19	.15
		3	..	..	.21	.21	.20	.16	.16	.13
		4	..	..	.19	.19	.18	.15	.14	.12
		5	..	..	.19	.19	.18	.15	.15	.12
	12"	1	.39	.37	..	..	..	..	..	..
		2	..	..	.26	.25	.24	.19	.19	.14
		3	..	..	.20	.20	.19	.16	.15	.12
		4	..	..	.18	.18	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.15	.14	.12
Hollow concrete blocks, light-weight aggregate	8"	1	.36	.34	..	..	..	..	..	..
		2	..	..	.25	.24	.23	.19	.18	.14
		3	..	..	.20	.19	.19	.15	.15	.12
		4	..	..	.17	.17	.17	.14	.14	.11
		5	..	..	.18	.18	.17	.14	.14	.12
	12"	1	.34	.33	..	..	..	..	..	..
		2	..	..	.24	.24	.23	.18	.18	.14
		3	..	..	.19	.19	.18	.15	.15	.12
		4	..	..	.17	.17	.16	.14	.13	.11
		5	..	..	.17	.17	.17	.14	.14	.11

WHAT GOOD IS A BASEMENT FULL OF BACKWATER?

WEAKENS FOUNDATIONS

UNDERMINES FLOORS

DAMAGES EQUIPMENT

WATERLOGS SUPPLIES

LEAVES DIRTY RESIDUES

CAUSES INCONVENIENCE AND EXPENSE

provide Permanent Protection always with

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BACKWATER CONTROLS

● A water-logged basement results from being "penny-wise and pound-foolish." To the owner it is useless, messy, unsanitary and costly! Yet hundreds of thousands of dollars are spent each year to repair buildings and replace equipment and merchandise damaged by backwater . . . simply because the proper safeguards were not provided. Every building connected to a sewer line is subject to the danger of backwater. When water from a sewer backs up as a result of excessive rains, thaws or floods, it flows into basements with destructive force. Foundations are weakened, floors broken, equipment and merchandise are covered with filth. In most cases, unfortunately, this damage is not covered by insurance.

Why take chances when positive protection against the ever-present danger of backwater is so easy to provide? Josam offers a wide range of backwater controls tested and proved in thousands of different installations. In every case the super-sensitive mechanism in Josam backwater controls permits speedy drainage from the building but *closes instantly* at the slightest backflow . . . keeps backwater out! Send coupon for full information today.

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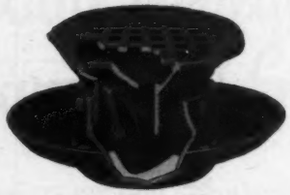

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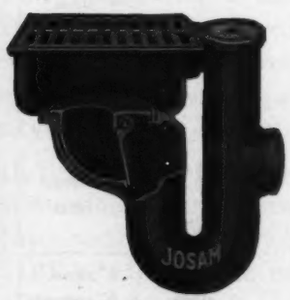

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NORTH AMERICAN BUILDING STONES—14

Presented through the cooperation of the International Cut Stone Contractors' and Quarrymen's Association

INDEX OF BUILDING STONES

50 ROCKWOOD STONE
Company Name: Alabama Limestone Co.
Quarry Location: Rockwood, Russellville, Ala.
Geological Designation: Oolitic Limestone
Texture: Extremely fine-grained
Color: Gray with heavy veining, cream
Chemical Composition: Calcium carbonate—98%
Physical Tests: 4.4% in 25 hr
Strength: Crushing strength—4553 psi
Weight: 145 pcf
Furnished As: Dimensional, Splitface
Surface Coverage: Splitface—100 sq ft in 2.3 tons
Other Facts: See also Clouded buff, Veined gray

51 STE. GENEVIEVE LIMESTONE
Company Name: Ste. Genevieve Building Stone Co., Inc.
Quarry Location: Bloomsdale, Ste. Genevieve County, Mo.
Geological Designation: Dolomitic Limestone (joachim formation)
Color: Cream
Physical Tests: Specific gravity—2.46%
Weight: 155 pcf
Furnished As: Ledgestone: Heights—2"–10". Lengths—12"–36". In rough and semi-rough finishes
Surface Coverage: 40 sq ft per ton

52 SANDY STONE
Company Name: Wilford H. Hansen
Quarry Location: Sandy, Utah
Geological Designation: Nugget Sandstone
Texture: Fine-grained
Color: Buff to gray, red to purple
Chemical Composition: Tests not completed
Physical Tests: Specific gravity—2.33%; absorption of moisture—1.50%
Strength: Crushing strength—12,400 psi
Weight: 145.2 pcf
Furnished As: Splitface, Ledgestone: Heights—1"—13". Lengths 6"–48"
Surface Coverage: 40 sq ft

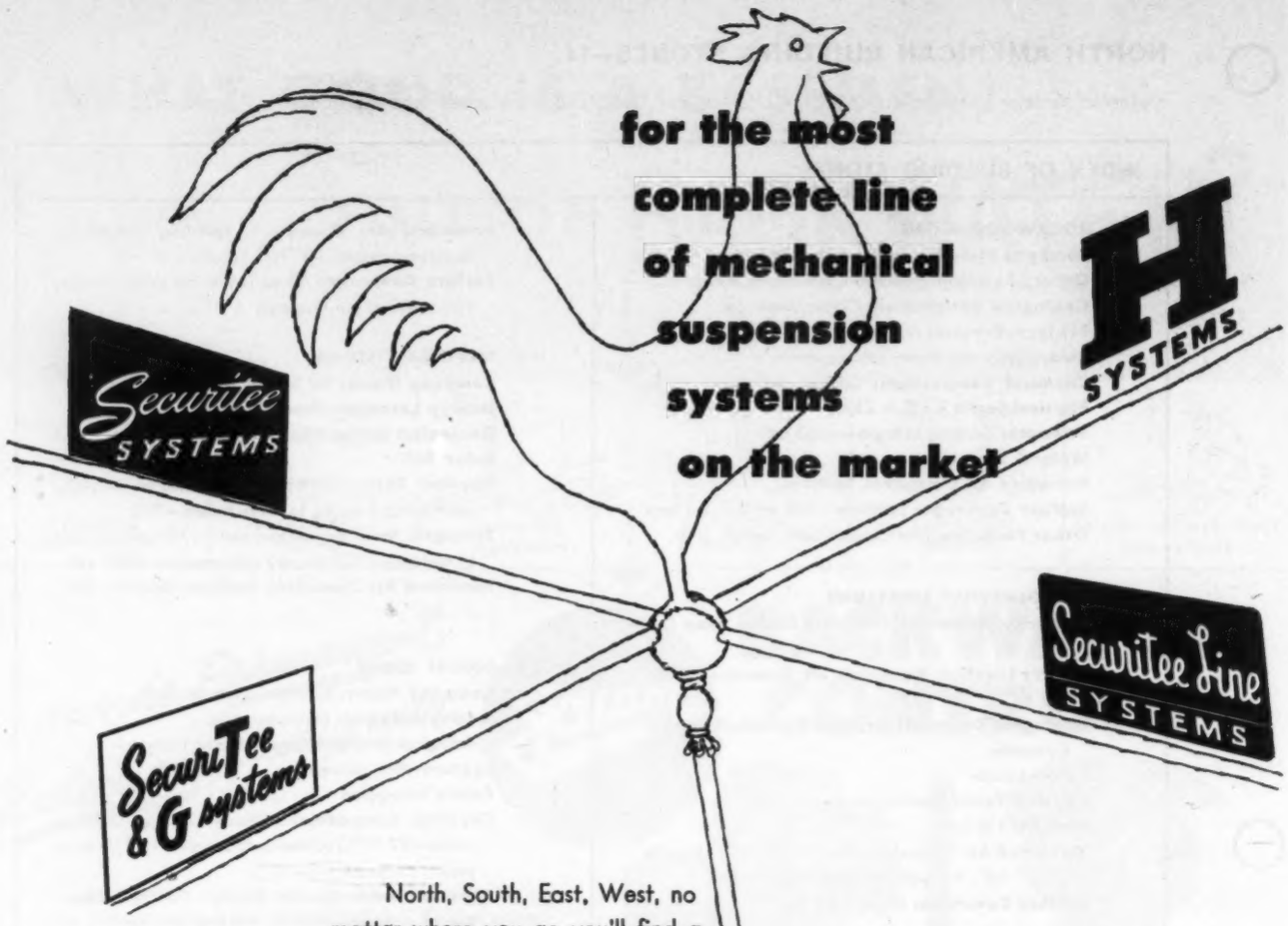
53 SANTA MARIA STONE
Company Name: G. Antolini and Sons
Quarry Location: 18 miles northeast of Santa Maria, Calif. (Mail address: 131 Gutierrez St., Santa Barbara, Calif.)
Geological Designation: Dolomitic Limestone
Color: White, cream, rust
Chemical Tests: Silica—22 millimols; reduction in alkalinity—150; ratio Sc: Rc—0.147; indicated quality—innocuous
Physical Tests: Specific gravity—2.487%; absorption of moisture—3.35%; sodium sulphate soundness test loss—2.5%
Strength: Compressive strength, parallel, dry—21,700 psi, wet—22,000 psi; perpendicular, dry—16,300 psi, wet—11,300 psi
Furnished As: Dimensional, Splitface, Ledgestone, Flagstone. Heights—1"–9". Lengths—10"–4'
Surface Coverage: 40 sq ft per ton ashlar veneer; 100 sq ft per ton flagstone

54 SILVERDALE STONE
Company Name: The Silverdale Cut Stone Co.
Quarry Location: Silverdale, Kan.
Geological Designation: Oolitic Limestone
Color: Buff
Physical Tests: Absorption of moisture—16.50%; weathering, freezing to cause failure—316
Strength: Shear by punching test—1725 psi; modulus of rupture—1055 psi; dry compression—6500 psi
Furnished As: Dimensional, Splitface: Heights—2¼", 5", 7¾"

55 SUNSET STONE
Company Name: Burlington Quarries Corp.
Quarry Location: Burlington, Wis.
Geological Designation: Dolomitic Limestone
Texture: Fine-grained
Color: Variegated
Chemical Composition: Silica—12.78%; aluminum oxide—22.50%; calcium carbonate—31.72%; magnesium carbonate—30.00%
Physical Tests: Specific gravity—2.78%; absorption of moisture—3.26%; freezing and thawing did not affect stone
Strength: Crushing strength—16,078 psi
Weight: 159.15 pcf
Furnished As: Heights—1½"–8". Lengths—10"–48"
Surface Coverage: 40 sq ft per ton

56 TENNESSEE STONE
Company Name: Loeffler Quarries
Quarry Location: Crossville, Tenn. (Mail address: 14501 Hamilton Ave., Detroit, Mich.)
Geological Designation: Quartzite
Color: Gray, pink, tan, buff, variegated
Furnished As: Ledgestone. Heights—1"–6". Lengths—random 8" to 4'
Surface Coverage: 40 sq ft per ton ashlar veneer

57 TENNESSEE VARIEGATED STONE
Company Name: Turner Brothers Stone Co.
Quarry Location: 4 miles east of Crossville, Tenn.
Geological Designation: Quartzite
Color: Pink, tan, buff, gray, variegated
Physical Tests: Absorption of moisture—1–1.27%; abrasive hardness—wear per 10,000 revolutions—1.52%
Strength: Crushing strength—20,850 psi
Weight: 162 pcf
Furnished As: Pitched Face (Strip rubble): Heights—1"–8". Lengths—from 6". Strataface, Ashlar Strips: Thickness—2"–3½", 3⅜"–5". Flagging: Heights—½"–3½". Treads and coping
Surface Coverage: 33 sq ft per ton
Other Facts: Nonslip, impervious, nonfading



North, South, East, West, no matter where you go you'll find a W. J. Haertel suspension system in use. Five top brands, eight different styles —all quality products, carefully engineered, accurately fabricated. It's the most complete quality line of mechanical suspension systems, for the erection of acoustical tile, on the market. See Sweets Architectural File or write direct for complete technical data.

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NORTH AMERICAN BUILDING STONES—15

Presented through the cooperation of the International Cut Stone Contractors' and Quarrymen's Association

INDEX OF BUILDING STONES— (To be continued in a later issue)

58 TENNQUARTZ STONE
Company Name: Tennessee Stone Co., Inc.
Quarry Location: Crab Orchard District, Tenn.
Geological Designation: Quartzite
Color: Pink, tan, buff, gray, variegated
Chemical Composition: Alumina—2.98%; iron oxide—0.72%; titanium oxide—0.25%; calcium oxide—0.10%; magnesium oxide—0.42%; silica (by difference)—94.88%; loss in ignition—0.60%
Physical Tests: Specific gravity—2.57%; absorption of moisture—1.53%; coefficient of hardness, with strata—18.06%, against strata—16.8%; toughness test (blows to fracture), with strata—14%; against strata—20%
Strength: Compression test, dry condition, with the strata—26,833 psi, against the strata—17,366 psi; saturated condition, with the strata—25,667 psi, against the strata—13,950 psi
Weight: 162.4 pcf
Furnished As: Ledgestone (rubble veneer): Heights—1"–10". Lengths—random from 8" to 4'. Masonry bed approx 4½". Flagstone: Heights—½"–5". Lengths—1'–8'
Surface Coverage: 1 in. thick—140 sq ft per ton. 2 in. thick—70 sq ft per ton

59 VEINED GRAY STONE
Company Name: Alabama Limestone Co.
Quarry Location: Aday, Russellville, Ala.
Geological Designation: Oolitic Limestone
Texture: Extremely fine-grained
Color: Pearl gray with a regular darker pencil-width vein
Chemical Composition: Calcium carbonate—98%
Physical Tests: Moisture absorption—4.4% in 25 hr
Strength: Crushing strength—4553 psi
Weight: 145 pcf
Furnished As: Dimensional, Splitface
Surface Coverage: Splitface—100 sq ft in 2.3 tons
Other Facts: See also Clouded buff, Rockrange, Rockwood

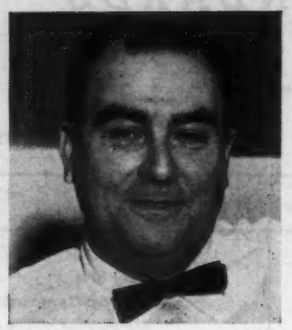
60 VICTOR GREY—VICTOR—VARIEGATED STONE
Company Name: Victor Oolitic Stone Co.
Quarry Location: Bloomington, Ind.
Geological Designation: Oolitic Limestone
Texture: Fine
Color: Gray, gray-buff
Chemical Composition: Calcium carbonate—approx. 98%
Strength: Crushing strength—5500 psi
Weight: 175 pcf
Furnished As: Dimensional

61 VICTOR HURO STONE
Company Name: Victor Oolitic Stone Co.
Quarry Location: Bloomington, Ind.
Geological Designation: Oolitic Limestone
Texture: Fine to medium
Color: Buff
Chemical Composition: Calcium carbonate—98.6%; magnesium carbonate, silica, iron oxide—2.0%
Physical Tests: Absorption of moisture—1–2%; abrasive hardness—9 plus
Strength: Crushing strength—10,000–17,500 psi
Weight: 185 pcf
Furnished As: Dimensional

62 VICTOR ROUGE BUFF STONE
Company Name: Victor Oolitic Stone Co.
Quarry Location: Bloomington, Ind.
Geological Designation: Oolitic Limestone
Texture: Medium to medium coarse
Color: Rouge coloration combined with buff
Chemical Composition: Calcium carbonate—approx. 98%
Strength: Crushing strength—5500 psi
Weight: 180 pcf
Furnished As: Dimensional

63 VICTOR TRAVERTINE STONE
Company Name: Victor Oolitic Stone Co.
Quarry Location: Bloomington, Ind.
Geological Designation: Oolitic Limestone
Texture: Very coarse
Color: Buff
Chemical Composition: Calcium carbonate—approx. 98%
Strength: Crushing strength—5500 psi
Weight: 170 pcf
Furnished As: Dimensional

64 WHITE-TO-GREY GEORGIA MARBLE
Company Name: The Georgia Marble Company
Quarry Location: Tate, Ga.
Geological Designation: Marble
Texture: Large sparkling crystals
Color: White to light gray with random dark gray veining and marking
Chemical Composition: Calcium carbonate—98.2%; magnesium silicate—1.03%; silica—0.48%; alumina—0.09%; oxide of iron—0.04%; moisture—0.16%
Physical Tests: Specific gravity—2.71%; absorption of moisture—0.09%; abrasive hardness—15.9; carbonic acid test—slight roughening but no granulation
Strength: Crushing strength—10,356 psi. Crushing strength unaffected by freezing and thawing 30 times
Weight: 170 pcf
Furnished As: Splitface. Heights—⅞", 2¼", 5", 7¾". Lengths—3' average, 5' max., 1' min.
Surface Coverage: 40 sq ft per ton—2¼", 5", 7¾" ashlar veneer (more when higher proportions of low risers are used)
Other Facts: Insulation factor similar to that of marble chip roofing



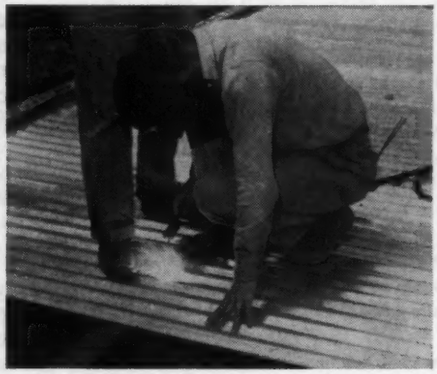
Roofing-Contractor's Superintendent (at left)
JACK OWEN says, "You've got a roof of superior strength when Corruform and Tufcor are used. Big savings in time and labor costs because these materials are easy to place and weld."

Contractor's Representative (at right)
HAROLD HERES says, "Corruform and Tufcor keep the entire job moving ahead on schedule. That means savings in construction costs."

TUFCOR SPEEDS COMPLETION OF MODERN BATON ROUGE SCHOOL

30,000 SQUARE FEET OF TUFCOR

Quickly Placed. Tufcor and Corruform sheets are delivered to job site pre-cut to fit framing. A crew of two or three men can easily place 5,000 to 10,000 square feet, in a single working day.



Lightweight High-strength Steel Deck is welded to purlins. Deep-corrugated Granco *tough-temper* steel has high load carrying capacity—permits wider joist spacing, reduces framing costs.

Vent Clip Prevents Vapor Pressure Build-up. Granco vent clips, inserted on lip of each sheet, one between each support, prevent vapor build-up in roof slab under intense summer sun.

Granco Products keep job on schedule, reduce labor costs, save time.

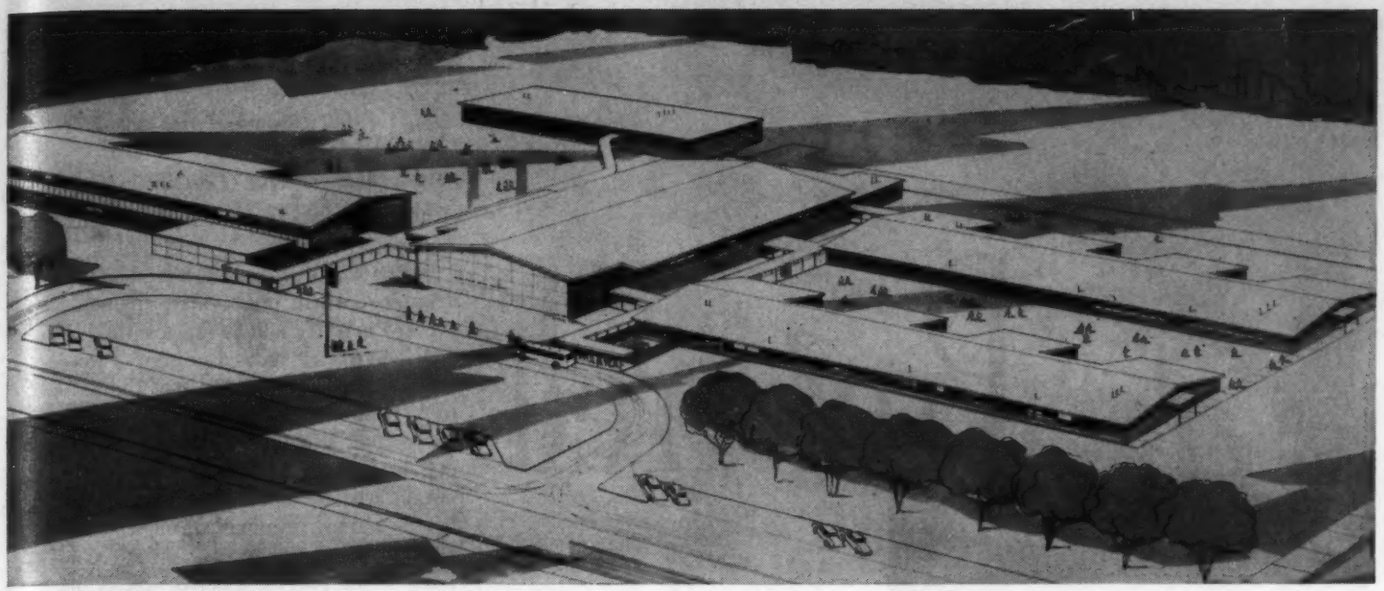
BATON ROUGE, LOUISIANA—One of Louisiana's most modern schools is scheduled for fall completion. Situated on the northern edge of this capitol city, the Glen Oaks School consists of five buildings, connected by covered walks.

Heavy Duty Corruform and Tufcor, specified for the buildings' roof slabs, contributed to substantial savings in time and labor costs. For example, on two of the Glen Oaks buildings, 30,000 square feet of Tufcor was laid in 30 hours.

Harold Heres, Vice President of Caldwell & McCann, contractors on the new Glen Oaks School, says, "there are no unexpected slow-ups when Tufcor or Corruform are specified. That's what we like about these materials—you can be sure you've got a tough, strong roof and construction is much faster."

Pre-cut to fit the building frame, Tufcor and Corruform sheets arrived at the Glen Oaks building site ready for placing. As soon as structural steel frame was completed, crews were able to place and weld units to frame and the concrete placing operation started immediately.

Tufcor and Corruform make roof construction a simple, fast operation, resulting in time and material savings. For information, estimates or costs on your building plan, contact home or district office, attention Dept. R-2.



Glen Oaks School, *Baton Rouge, Louisiana* • Architects: *Manson and Thompson, Baton Rouge, Louisiana*
Associate Architects: *Goodman and Miller, Baton Rouge, Louisiana* • Contractor: *Caldwell & McCann, Baton Rouge, Louisiana*

ROOF DECK LAID IN 30 HOURS

Immediate Working Platform. In place, Tufcor and Corruform provide an immediate safe, usable working surface. Light mesh is added for shrinkage control of lightweight insulating concrete.

Insulation Placed on Tufcor in fast operation. Lightweight insulating concrete (4-5 lbs. psf) on steel deck provides insulation. Bond occurs between concrete slab and galvanized sheets.

Permanent, Incombustible Roof Deck is provided by cast-in-place slab. When concrete is screeded to depth of 2½"-3", load tests show safety factors of 6 to 8 for finished deck.

Ideal Base for Built-up Roof. This deck is ideal from two standpoints — a good deck for the roofer to work on—more important, throughout the life of the building, it is an inorganic permanent base for the built-up roof.

An Economical, Fire-Safe Roof. Finished roof offers maximum in permanence, fire safety. Bright galvanized surface gives lasting protection; affords light reflection when left exposed. However, any normal ceiling treatment may be applied.

see our catalog in S or write for copy

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Also manufacturers of Cofar and Roof Deck

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The right type lock line for every type of service

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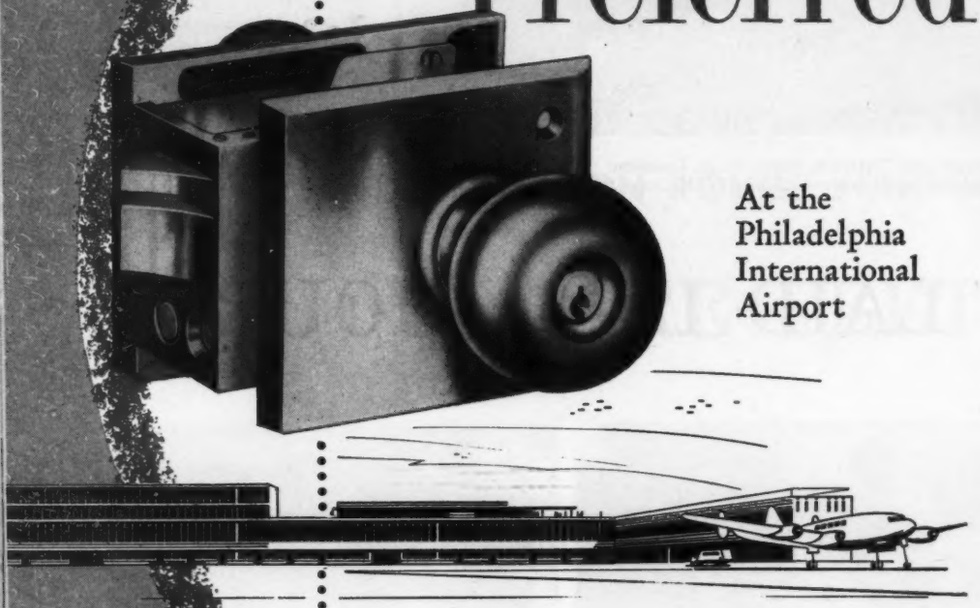
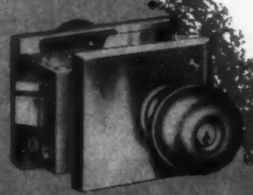


At the Philadelphia International Airport

RUSSWIN®

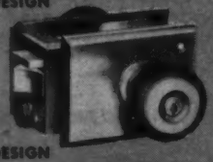
HEAVY DUTY

UNIT LOCKS



MODERA DESIGN

ENFIELD DESIGN



LENOX DESIGN

With functionalism the keynote of this modern airport terminal building, Russwin Unit Locks were the logical first choice. Their knobs, escutcheons and lock frame are solid bronze metal castings . . . locking mechanism is heavy wrought brass. These locks are fully assembled at factory . . . no dis-assembly required for installation.
Russwin Unit Locks are available in several designs, fourteen functions including those for fire tower doors and all popular finishes. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.

A/E ROUNDUP

(*Continued from page 234*)

PAINT BLISTERING (*Continued*)

of drip cuts, grooves and back dressing on capillarity.

Panels which were dipped for 3 min in a water-repellent preservative, painted, exposed in a dry kiln to cause shrinking and then wetted showed no sign of wetting on the back regardless of the pattern. However, in spite of good results on treated, standard-pattern bevel siding, back dressing seemed desirable to obtain a better and tighter joint at the lap to reduce openings through which wind-blown water could enter. Also, paint would provide a better seal at the lap and back dressing would give better support for nailing and should reduce splitting in both the butt edge and the thin edge.

Good results, although not equal to those of dip-treated panels, were obtained with panels of standard-pattern, untreated material that had been previously tested and then brush-treated with a water repellent at the lap and again exposed to wetting.

Tests on untreated siding showed that a material reduction in water ingress can be obtained by the use of back dressing and grooving. Back dressing at the butt to provide a smooth surface in the same plane as the face of the siding was effective in reducing capillarity and in making a tighter joint at the lap, so that the paint offered some mechanical resistance to moisture entrance. A horizontal groove on the back in the area covered at the lap also reduced capillary flow. The best results were obtained with a combination of back dressing and the horizontal groove.

. . . . . .

• **An experimental boiling water reactor** is being constructed by the Argonne National Laboratory near Chicago. Part of the AEC's 5-year program for development of competitive electrical power from nuclear fuel, the reactor will be designed to produce 20,000 kw of heat and 5000 kw of electricity.

• **"Super-finishes" for genuine hardwoods** emerged unmarked after two days of being subjected to such tests as burning cigarettes and spilled drinks at the 21st Annual Meeting of the Fine Hardwoods Association in Chicago.

AE ROUNDUP

ELECTRIC HEATING *Installations Increasing in Residential Building*

A slow but steady growth since 1949 in the number of Detroit homes using electric radiant panel heating was reported at the Winter General Meeting of the American Institute of Electrical Engineers by A. E. Bush and R. P. Woodward, both of The Detroit Edison Co., in a paper entitled, "Residential Electric Space Heating in Detroit for 1952–1953 Heating Season."

The paper reported exhaustive data on 29 new homes designed and insulated for electric heating and concluded that electric space heating at current residential rates, even with the small and well-ventilated home, is in the neighborhood of $275 per season, with some larger homes running as high as $600. Although this does not compare favorably with the present cost of other forms of heating, they observed that many average income families minimize the differential in operating costs because of the advantages of electric heating.

Utilities are welcoming the electric heating power load during the winter to balance the increasing load of summer air conditioning, said Stuart L. Forsyth, manager of the Westinghouse Electric Heating for Homes Dept. As a reflection of the interest in electric heating, the National Electrical Manufacturers Association has formed an electric house heating equipment section.

. . . . . .

• **Precast concrete grade beams** saved about two weeks construction time per building on a 54- by 40-ft compressor station and a 54- by 30-ft auxiliary structure built for a natural gas utility at Adaline, W. Va. The precast method, used before on larger jobs, minimized form building, since multiples of one standard form could be used; limited excavation, since no room for workmen was required; and facilitated working methods.

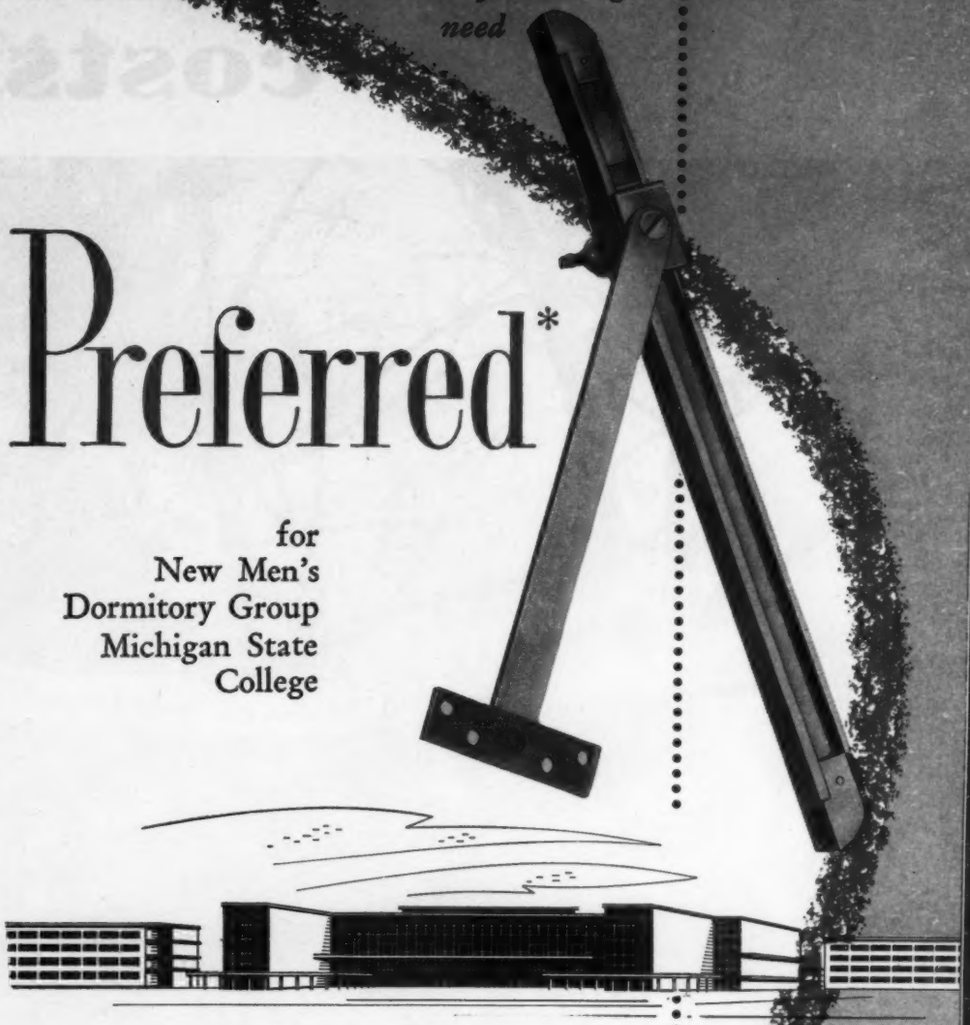
• **The National Clay Pipe Association's** research activities are being expanded so that various projects will be conducted by leading universities and research corporations as well as by the Association.

(*Continued on page 251*)

Finishing Hardware for every building need

Preferred*

for New Men's Dormitory Group Michigan State College



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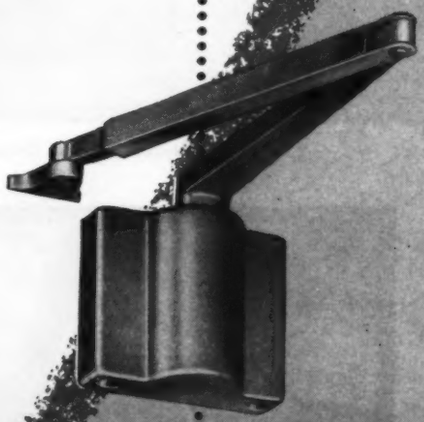
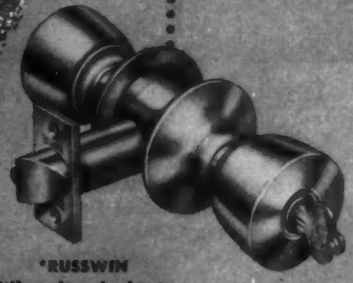
Heavy Duty

DOOR HOLDERS

The heavy I beam construction of the door holder illustrated is one of the features that wins preference for Russwin. It assures maximum strength. Other long-life features include: track and slide made of extruded brass and hard-drawn brass or bronze arm. Every requirement for door holding can be met by the Russwin Line . . . the 600 "Triple Grip" Series concealed type; the 650 Series Surface Type; similar holders for heavy duty, plus free acting holders and door stays. Russell & Erwin Division, The American Hardware Corporation, New Britain, Conn.



*RUSSWIN "400" Door Closers



*RUSSWIN Stilemaker Locksets

New 3 in 1 Roof Deck costs to $7.94

Cedar Heights School, Cedar Falls, Iowa. Architects: Thorson, Thorson and Madson, Waterloo and Forest City, Iowa.

1. It's roof deck . . . Two by eight foot unit cuts application time as much as 45%. Only one material to handle. New Insulite Roof Deck eliminates need for separate roof boards, insulation, lath and plaster and ceiling finishing. Roof Deck can save 12 man-hours per 1,000 sq. ft. of surface compared with 2" x 6" D&M roof sheathing.

2. It's insulation with vapor barrier . . . No need for other insulation. Two-inch Roof Deck is comparable to 2" wood deck plus 1" fiberboard insulation and meets heat loss requirements for roof and ceiling construction. Absorbs sound better than wood or plaster. Exclusive vapor barrier protects against condensation within the unit.

3. And finished ceiling. The underside of Insulite Roof Deck is finished with a white flame-resistant surface at the factory. Lay Roof Deck over pre-finished beams and ceiling is done. No need to plaster, paint, stain or wax. Reduces labor and material costs. Available in 2'x8' units, 1½", 2" or 3" thick with or without exclusive vapor barrier.

helps hold school per sq. ft.

He held costs to $7.94 per sq. ft. O. H. Thorson, A.I.A., of Thorson, Thorson and Madson, Waterloo and Forest City, Iowa, took advantage of Roof Deck's money-saving features to help hold costs to $7.94 per sq. ft. on this 8700 sq. ft. elementary school. How this 3 in 1 product—roof deck, roof insulation and finished ceiling—can save $80 to $300 per M sq. ft. on exposed beam ceiling jobs is shown in the pictures at left.

Send for complete information now! Actual on-the-job pictures and construction details show how to use new Insulite Roof Deck to build better for less. Write Insulite, Minneapolis 2, Minnesota.

MANDO

Build better and save with

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Series 1250

HERE'S THE NEW LOOK IN FIRE PROTECTION!

Functional—of course! Efficient—naturally! This new Edwards Fire Alarm is all that and more. Smartly designed, sleek, streamlined. Truly modern. Tear drop design hugs wall. Projects only 1⅞ inches. Nothing extends to cause accidental false alarms. Smallest coded station available today. Single-action operation—simple, dependable, foolproof. No glass to break. One pull and release... the warning call is placed! No chance of a non-alarm due to haste or panic.

Edwards Fire Alarm Systems protect many of America's schools, hospitals and modern buildings ... like the U.N., Lever and Chrysler buildings. How about yours? For further information and illustrated bulletin, write Edwards Company, Dept. **AR-4,** Norwalk, Conn.

EDWARDS®
Reliable Time, Communication and Protection Products

New Streamlined Non-Code Station

Listed by Underwriters' Laboratories

Like the now famous coded station shown on the opposite page, this non-code station has the exclusive Edwards single-action mechanism that eliminates any possibility of non-alarm due to haste or panic. Just one motion actuates the alarm. No key to turn, no door to open before pulling handle. Also available in break-glass Model No. 270. Has tamper-resistant break-glass feature . . . the glass breaks when the lever is pulled.

Testing and resetting after alarm is easily accomplished with drop-front type of construction.

Station is die-cast in rugged zinc and finished in Fire Alarm Red. Small size and wall-hugging shape makes it suitable for any location. Only 3⅛″ wide, 4⅝″ high. Projects only 1″ from wall.

Installation is a simple matter. Station mounts on standard square box with plaster cover. For surface mount, special Edwards conduit box No. PP. 27193 is available. Box is cast aluminum finished in red to match the station.

For complete information on Edwards Fire Alarm Systems write for Bulletin FA—or see Sweets Architectural File. Edwards Co., Inc., Norwalk, Conn. In Canada: Edwards of Canada, Ltd., Owen Sound, Ontario.

EDWARDS

protects . . everywhere!

A.I.E. ROUNDUP

(*Continued from page 247*)

Modular measure as a principle of construction has been endorsed by the Bricklayers, Masons and Plasterers International Union, which, as a result of the action, has been hailed by the A.I.A., Producers' Council, Associated General Contractors of America, National Concrete Masonry Association, Structural Clay Products Institute, and Mason Contractors Association of America.

"Built-in" sound systems in homes, offices and auditoriums will be an important development in acoustics in the next year, forecasted Drs. Howard C. Hardy and Robert W. Benson, two "sound" experts at the Armour Research Foundation of the Illinois Institute of Technology, Chicago. The two scientists have been experimenting with new acoustical tests in which sound waves will be sent through materials to detect flaws so that defections can be anticipated before they occur. Applications of the tests will be broad, they reported, because sound waves propagate easily through most materials and so will give architects and engineers a better insight into their composition. Hardy predicted that architects will give increased attention to acoustical design in homes and other structures.

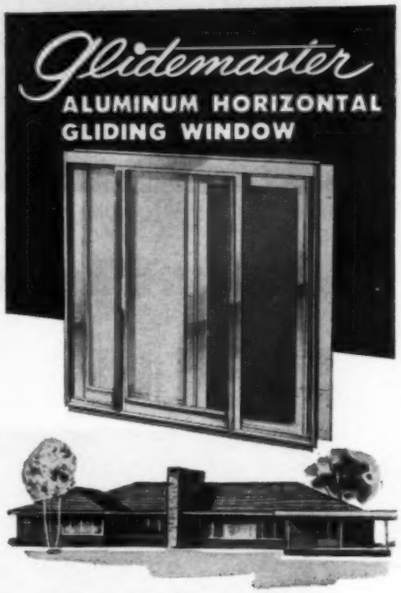
"To build or not to build" is a question of importance in industrial buildings of today, said W. E. Chandler, plant engineer with Monsanto Chemical Corp., at the Plant Maintenance and Engineering Show in Chicago. With modern techniques of continuous processes and automatic controls, the architect should so design a plant that a minimum of enclosed structure is required. Where a whole plant cannot be dispensed with, Chandler suggested, such elements as doors and windows can be eliminated.

• ***The use of standard parts*** wherever possible by the military services in accordance with industrial practice saved American taxpayers $65,000,000 during the first six months of 1954, reported R. V. Vittucci, Standardization Planning Engineer of the U. S. Navy Dept. Bureau of Ships, at the Third Annual Meeting of the Standards Engineers Society in Atlantic City.

(*Continued on page 254*)

Only window **today** that's designed and engineered for

tomorrow's modern living!

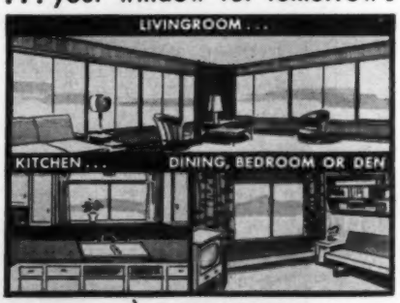


only window today with all these features—

- New V-shape twin interlock for perfect weather seal
- needle roller-bearings on stainless steel pins for permanent feather-glide
- streamlined "invisible" handle with automatic tamper-proof bolt-lock
- double-glazed—no storm windows needed
- built-in rust-proof aluminum screen
- Lifetime wear due to heavy extrusions, double I-beam sill, integral jamb flanges and fin.

Glidemaster

. . . your window for tomorrow's



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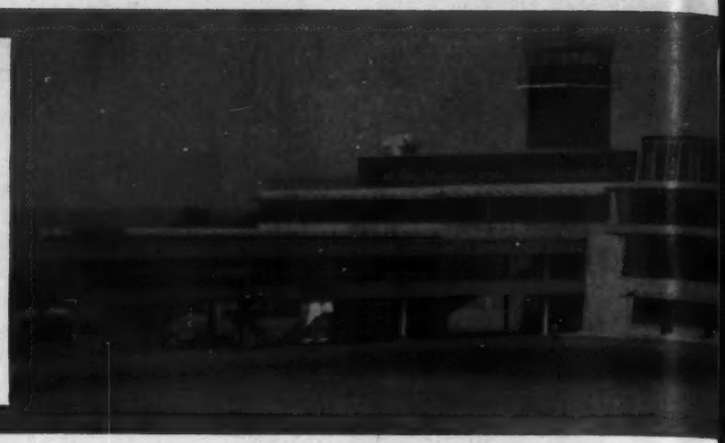
(NUMBER - STREET)

(CITY - ZONE - STATE)

BASICALLY CONSTRUCTED in the form of a modified "F"—with the two short arms representing the passenger loading piers—the main part of the new Philadelphia International Airport terminal building is three stories high, topped by a small fourth floor and control tower. This view shows the over-all field side of the terminal building, with its impressive application of Pittsburgh Glass. Architects: Carroll, Grisdale, and Van Alen, Philadelphia, Pennsylvania.



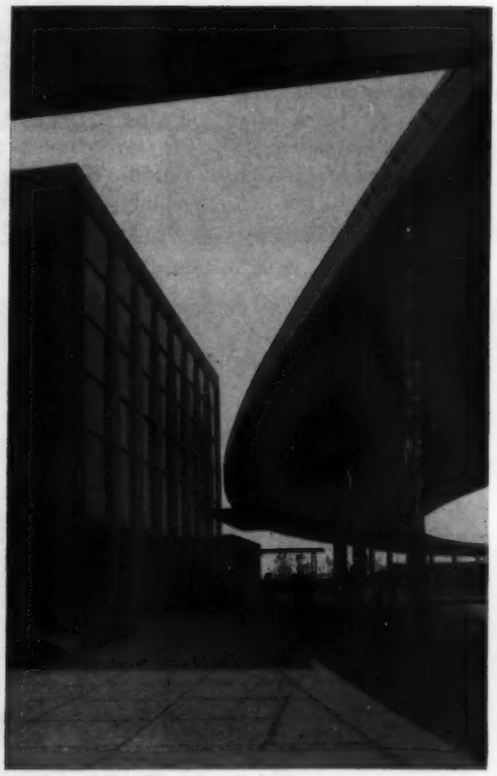
New Terminal Building at the
makes extensive use

CLEAR VIEW of the landing area from the third floor is obtained through Solex-Twindow units. These units are composed of two lites of glass—¼" Solex heat-absorbing, sun-glare-reducing glass on the outside, and ¼" polished plate glass on the inside, with a sealed-in air space between them. Solex-Twindow units are noted for their ability to reduce substantially the load on the air-conditionting system; they cut down on room-side condensation, minimize cold air downdrafts.

Design it better with **Pittsburgh Glass**

Philadelphia International Airport of PITTSBURGH GLASS

FRONT LOBBY of this new airport building, with its 41-foot ceiling, is entirely glazed with Pittsburgh's Solex-Twindow units. This means the maximum in glare-free daylighting, as well as added comfort for passengers and personnel.



THE COMBINATION of the sweeping overhead canopy and the soft, green-tinted Solex in the windows emphasizes the graceful lines of the exterior . . . achieves a modern, functional environment at the Philadelphia International Airport.

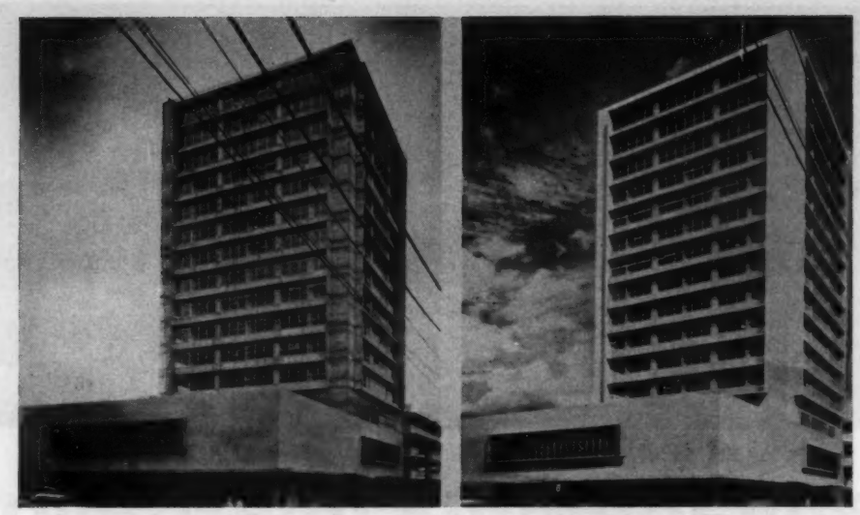
Your Sweet's Architectural File contains detailed information on all Pittsburgh Plate Glass Company products . . . Sections 6a, 15d, 20, 12e, 15a.

PPG PAINTS · GLASS · CHEMICALS · BRUSHES · PLASTICS · FIBER GLASS

PITTSBURGH PLATE GLASS COMPANY

IN CANADA: CANADIAN PITTSBURGH INDUSTRIES LIMITED

(*Continued from page 251*)



PLASTIC COATING *Sprayed on New 15-Story Concrete Hotel in Texas*

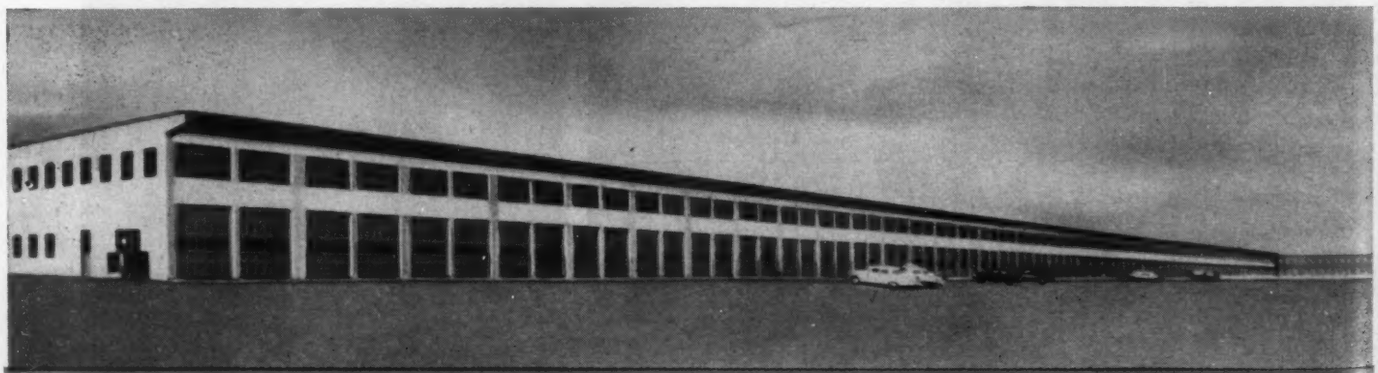
A flexible vinyl plastic film, weatherproof and non-combustible, covers the new 15-story Carlton Hotel in Tyler, Tex. Sprayed directly on 40,000 sq ft of reinforced concrete to form a continuous, jointless sheeting 0.030 to 0.035 in. thick, the liquid plastic coating eliminated the need for flashings, copings, facia and painting ordinarily used on such a structure.

The veneer applied to the Carlton Hotel is light gray with dark green ledge tops to reduce heat reflection. It was applied in six weeks by four sprayers and three helpers. The architect, Design Inc., of St. Louis, specified the plastic skin to allow simplification of detailing and construction on the outside. The two photos above show the hotel before and after application of the spray.

The liquid plastic coating is considered a permanent material with only three or four maintenance treatments required during the normal life of a building. This maintenance consists of injecting plasticiser into the sheeting by covering it with a new top layer. Otherwise the only maintenance required consists of simply washing the surface. This method of coating was introduced by Designer Guy G. Rothenstein, formerly with Skidmore, Owings and Merrill and now architectural consultant to Liquid Plastics Corp., manufacturer of Plastispray. It is an outgrowth of the wartime method of mothballing ships.

• •

"Modern Designing with Steel," a new series of monthly semi-technical reports, will present ideas for the use of steel with emphasis on economy of material and esthetic appearance. Published by Kaiser Steel Corp. for more than 8000 architects, engineers and construction men throughout the West, the papers will include engineering data, design samples and pictures of finished projects where new techniques are involved.



A Mile of Crawford Doors (400 Doors) In

The Market Building of the St. Louis Produce Association, Inc., is one of the largest buildings of its kind in the world and one of the most modern and functional. It houses the brokerage activities of more than 65 produce commission houses which own the building cooperatively and occupy standard units which are enclosed front and rear, and separated by 400 Crawford Doors.

Five miles of railroad track behind the two buildings can accommodate more than 200 produce cars at a time. About 100 cars a day deliver 1,500 tons of produce which enters through the rear doors, is sold on the floor and is loaded through the front doors onto hundreds of trucks for local delivery. The advantages of this direct flow and minimum handling are obvious and have brought many interested marketers to St. Louis to study this operation.

The "Market" is actually two buildings, each 1,235 feet long, 115 feet wide and 20 feet high. Each building contains 49 cooperative units, each of 25 foot frontage by 115 feet deep. Units are separated by Crawford Doors which permit units to be combined in twos, threes, etc. The building covers 20 acres, six city blocks, and provides 281,750 square feet of floor space. Construction is tilt-up concrete and was completed in October, 1952. Cost was $3,250,000.

The 400 Crawford Doors are distributed as follows: 100 doors 8′0″ x 8′0″ on the rear, facing on the railroad siding; 200 doors 10′0″ x 10′0″ on the front, facing on the truck loading docks; 100 doors 10′0″ x 8′0″ in the dividing walls, between units. All these doors are manually operated and are reported to be giving completely satisfactory service. If you have door problems, please write us; your inquiry will get prompt, intelligent attention. Crawford Door Company, 167-20263 Hoover Road, Detroit 5, Michigan. Plants in 10 cities; Warehouses in 94 cities; Sales and Service everywhere. In Canada, F. Fentiman & Sons Ltd., Ottawa, Ontario.

Home Mortgage & Investment Company, Oklahoma City, Oklahoma; Alban W. Davis, A.I.A., Architect; Southwestern Electric Company, Electrical Contractors.

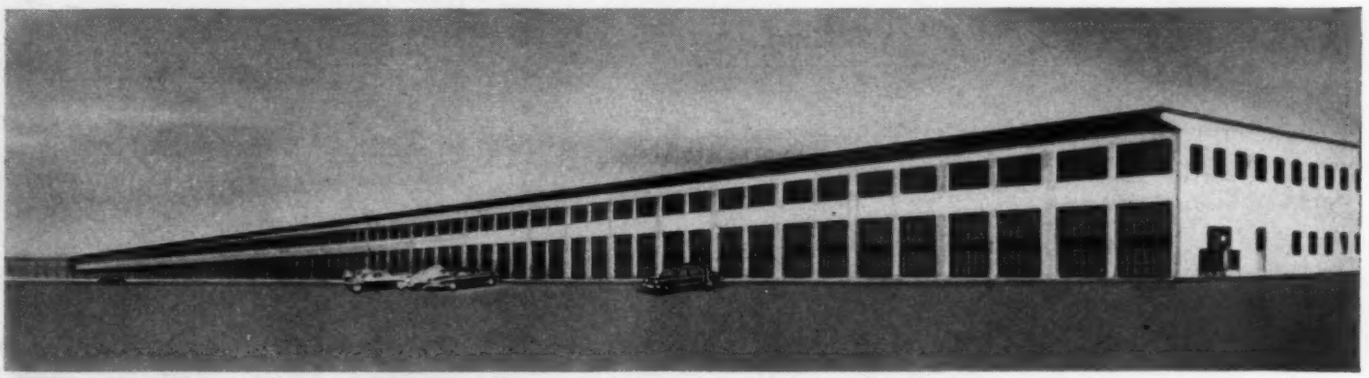
SPACIALITE

***A**rchitecturally Engineered*
***B**rightness Controlled*
***C**onstruction Distinctive*
Quality Lighting —
Fixture Efficiency 80%
Ideal 3:1 Brightness Ratio

THROUGH the interflection technique of equalizing overhead brightness and fixture brightness Spacialite gives natural, sight-saving, comfortable light at reasonable costs. Available in Preheat, Rapid Start and Slimline. Complete data in Brochure — write

Ainsworth Lighting Inc.

38-12 29th Street
Long Island City 1, N. Y.



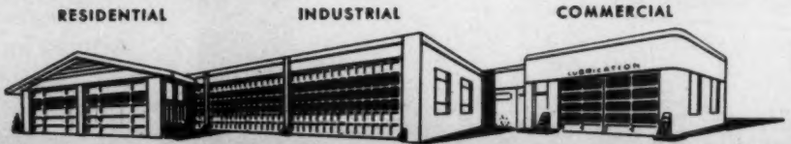
St. Louis Produce Association, Inc.
Market Building

Architects: **L. ROY BOWEN & ASSOCIATES, St. Louis, Mo.**
Contractors: **ROBINSON CONSTRUCTION CO., St. Louis, Mo.**
Crawford Doors by **CRAWFORD DOOR SALES CO. of St. Louis**

M. R. Zumwalt, President, Crawford Door Sales Co. of St. Louis

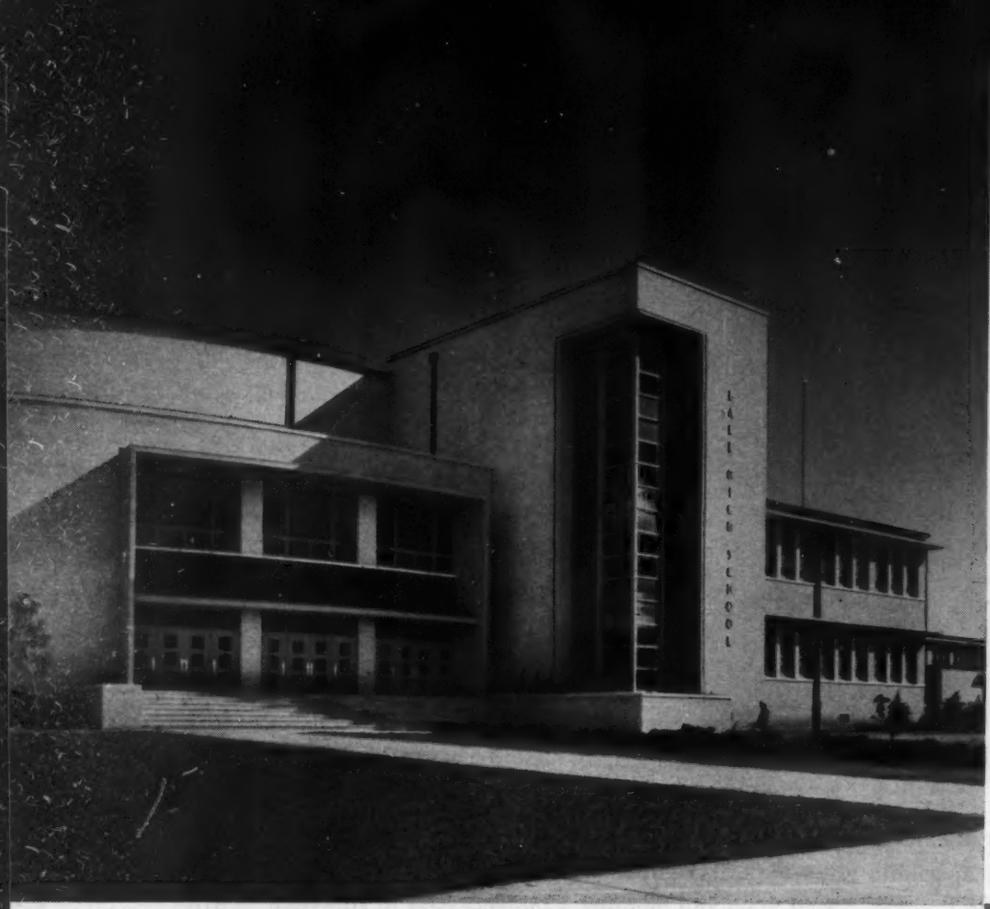
Crawford *MARVEL-LIFT* Doors

RESIDENTIAL INDUSTRIAL COMMERCIAL

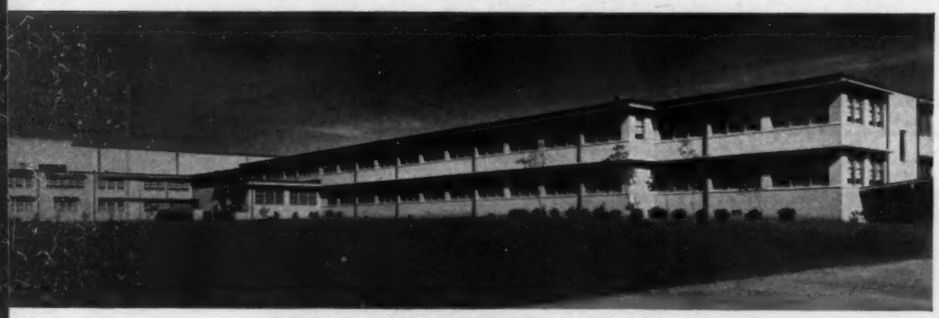


SEE OUR CATALOG IN SWEET'S

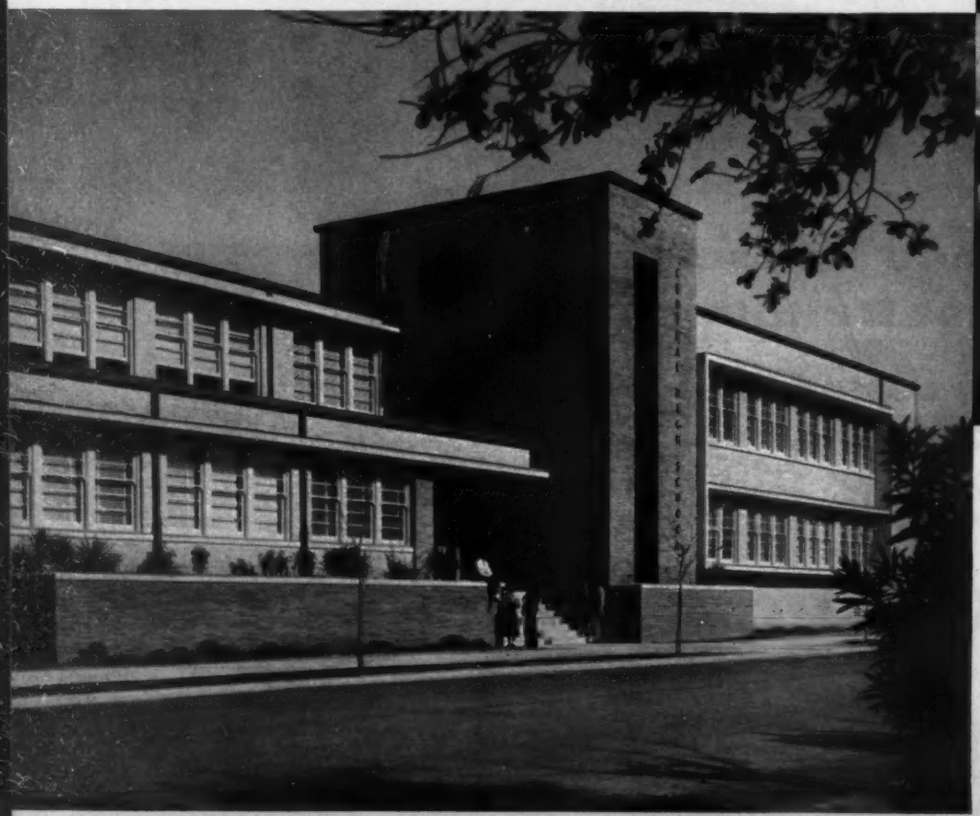
1930 • CRAWFORD'S 25th ANNIVERSARY • 1955



BALL HIGH SCHOOL, GALVESTON, TEXAS • See Rear View Below



Below: CENTRAL HIGH SCHOOL, GALVESTON, TEXAS



Architects for both buildings
PRESTON M. GEREN,
Fort Worth, Texas
R. R. RAPP,
Galveston, Texas

Mechanical Engineers
YANDELL, COWAN & LOVE
Fort Worth, Texas

Plumbing and Heating Contractor
A. J. WARREN
Galveston, Texas

Powers automatic temperature control is used throughout both schools which are alike in facilities and general design. Both have modern gym, cafeteria, swimming pool and showers. Photos below indicate excellence of interior design.

Drama and Public Speaking Classroom

Relaxation Area near Cafeteria Entrance

Maximum Schoolroom Comfort and Fuel Economy is Assured by Powers Control

(c-15)

They kept it simple... in these modern Galveston schools

Heating . . . Ventilating . . . Showers . . . Water heaters are all regulated by

POWERS *Temperature Control*

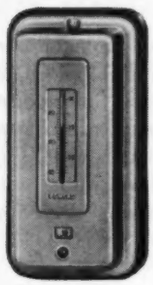
One dependable Source, one responsibility, for satisfactory performance and service if required, is one of the many reasons why so many buildings are equipped throughout with Powers temperature control.

Chemistry Lab

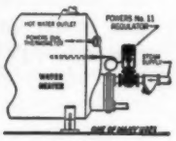
Auditorium

Civics and History Classroom

Home Economics Classroom



Each School has Individual Room Control of heating and ventilating.



Powers No. 11 Regulators Control Domestic Water Heaters also Swimming Pool Heaters.

Boys and Girls Showers also are Thermostatically controlled by Powers

When you want automatic temperature control with the time-tested-and proven-dependable features of Powers regulation, call our nearest office or write us direct.

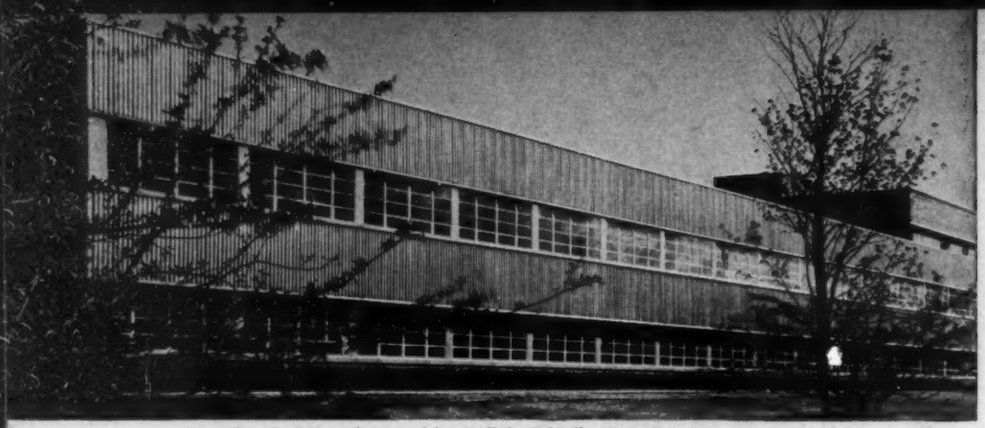
POWERS CONTROL

THE POWERS REGULATOR COMPANY

SKOKIE, ILLINOIS | *Offices in chief cities in U.S.A., Canada and Mexico*

See your phone book

Over 60 years of Automatic Temperature and Humidity Control

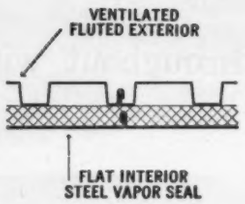


An office building designed by Giffels & Vallet & L. Rossetti, Associated Engineers and Architects, Detroit.

3 Good Technical Reasons For Specifying Robertson Q-Panels

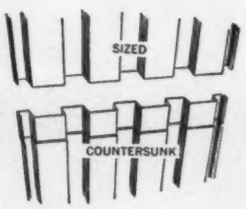
1

Continuous Sealed Joints The interlocking side lips on both the inner and outer surfaces of the panels are caulked to provide a continuous sealed joint. Thus, when the panels expand or contract, the joints do not separate but remain in contact with the caulking material. This efficient side joint effectively maintains the insulation qualities of the wall and prevents the infiltration of air, dirt and moisture.



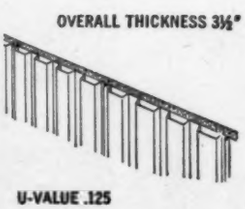
2

Flush Lap Joint Special conditions often make end-joints unavoidable. All standard Robertson Q-Panels are die-set and countersunk at the end lap, producing neat, almost invisible joints, with full insulation at that point. This feature eliminates the inefficient butt-joint with its unattractive through-wall flashing and consequent insulation loss.



3

Efficient Insulation The U-Value of an M-Type Q-Panel wall is .125 BTU per sq. ft. per hr. per °temp. diff., F. This was established by careful tests made at one of the nation's leading industrial research laboratories. Special attention was given to thermal conductivity at all critical points along the wall and the established U-Value is an average over a stretch of wall involving several side laps. Use the coupon to write for details.



H. H. Robertson Company

2404 Farmers Bank Building • Pittsburgh 22, Pennsylvania

In England: Robertson Thain Ltd., Ellesmere Port, Cheshire • In Canada: Robertson-Irwin Ltd., Hamilton, Ontario

Send me new Q-Panel book giving structural details.

NAME TITLE

FIRM

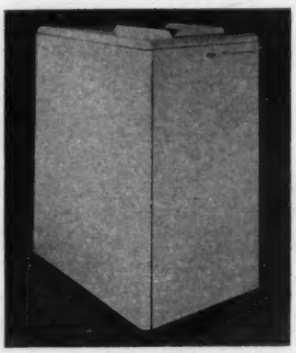
ADDRESS CITY

A|E PRODUCTS

(*Continued from page 236*)

AIR CONDITIONING SYSTEMS

• "*Roomaire*" *Conditioner* is a remote-type room air conditioning unit for multi-room installations. Subject to individual room control, the services incorporated into this unit are cooling and dehumidifying, heating, ventilating, cleaning and circulating air. Water supply, water return, drain and electrical connections are made directly to the unit. Control of water flow is made by a manual valve or an automatic valve operated by a temperature control device. *Young Radiator Co., Racine, Wis.*

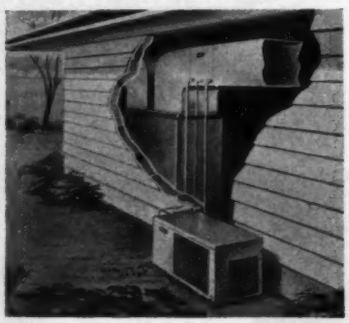


• A new *Frigidaire "add-on" air conditioner line* can be installed in conjunction with any forced air furnace. The units, in 2-, 3- and 5-ton capacities, can be placed in the basement next to the furnace, in a utility room, or in the attic. The coil and fan sections can be lifted out of the compressor section shown above and installed separately. *Frigidaire Div., General Motors Corp., 300 Taylor St., Dayton 1, Ohio.*

• The new *Dual-Vector* provides year-round air conditioning by means of forced hot and chilled water in new or existing houses. The twin fan in the Dual-Vector can be controlled either thermostatically or by manual setting. *Union Asbestos & Rubber Co., Heating & Cooling Div., 332 So. Michigan Ave., Chicago, Ill.*

AE PRODUCTS

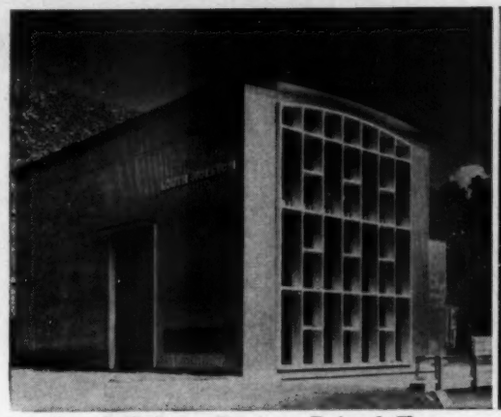
• The *usAIRco year-round conditioner* combines a gas-fired warm air furnace with 2- or 3-ton cooling capacity. The combination unit uses a single duct system to cool, heat, dehumidify and circulate the air. In the summer a bypass damper prevents the flow of cool air over the heat exchanger so that there will be no condensation or rust formation in the furnace. Designed for installation in the basement, utility room or closet, the unit measures 44 in. wide by 37 in. deep by 57 in. high. *U. S. Air Conditioning Corp., 3300 Como Ave. S. E., Minneapolis 14, Minn.*



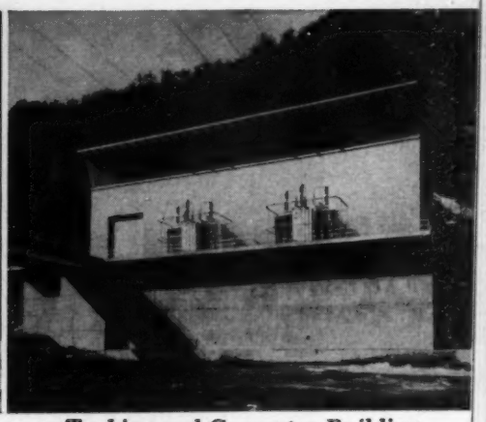
• The *waterless Remote Marvair* is offered in 2- and 3-ton sizes capable of air-conditioning homes up to 2000 sq ft. A weatherproof, soundproof cabinet outside the house holds the condenser section, which has an extra large air coil and a 15-in. sirroco-type silent blower fan. High and low lines lead inside to horizontal-flow evaporator located in duct above furnace. Evaporator can also be placed adjacent to furnace, in the attic with its own special ductwork to rooms or through a drop-ceiling arrangement. *Marvair Div., Muncie Gear Works, Inc., Muncie, Ind.*

(*Continued on page 262*)

Johnsonville Steam Plant, Johnsonville, Tenn.



South Holston Project, Bristol, Tenn.



Turbine and Generator Building, Watauga Dam, Elizabethton, Tenn.

Robertson Q-Panels helped bring both beauty and utility to TVA installations

In TVA installations, as in power stations everywhere, Robertson Q-Panel walls are popular because they are practical as well as beautiful. Beyond good looks, here are some very practical reasons for specifying Q-Panels: 1. Q-Panels are permanent, dry and noncombustible, yet may be demounted and re-erected elsewhere to keep pace with expansion programs. 2. Q-Panels are light in weight, thus reducing the cost of framing and foundations. 3. Q-Panels have high insulation value . . . superior to a 12" masonry wall. 4. Q-Panels are quickly installed because they are hung, not piled up. An acre of wall has been hung in 3 days. For more good reasons for using Q-Panel construction, use the coupon below to write for literature.

Robertson

Q-Panels

a product of **H. H. Robertson Company**

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Send me new Q-Panel book giving structural details.

NAME

FIRM

ADDRESS

CLEAR PRISMATIC GLASS

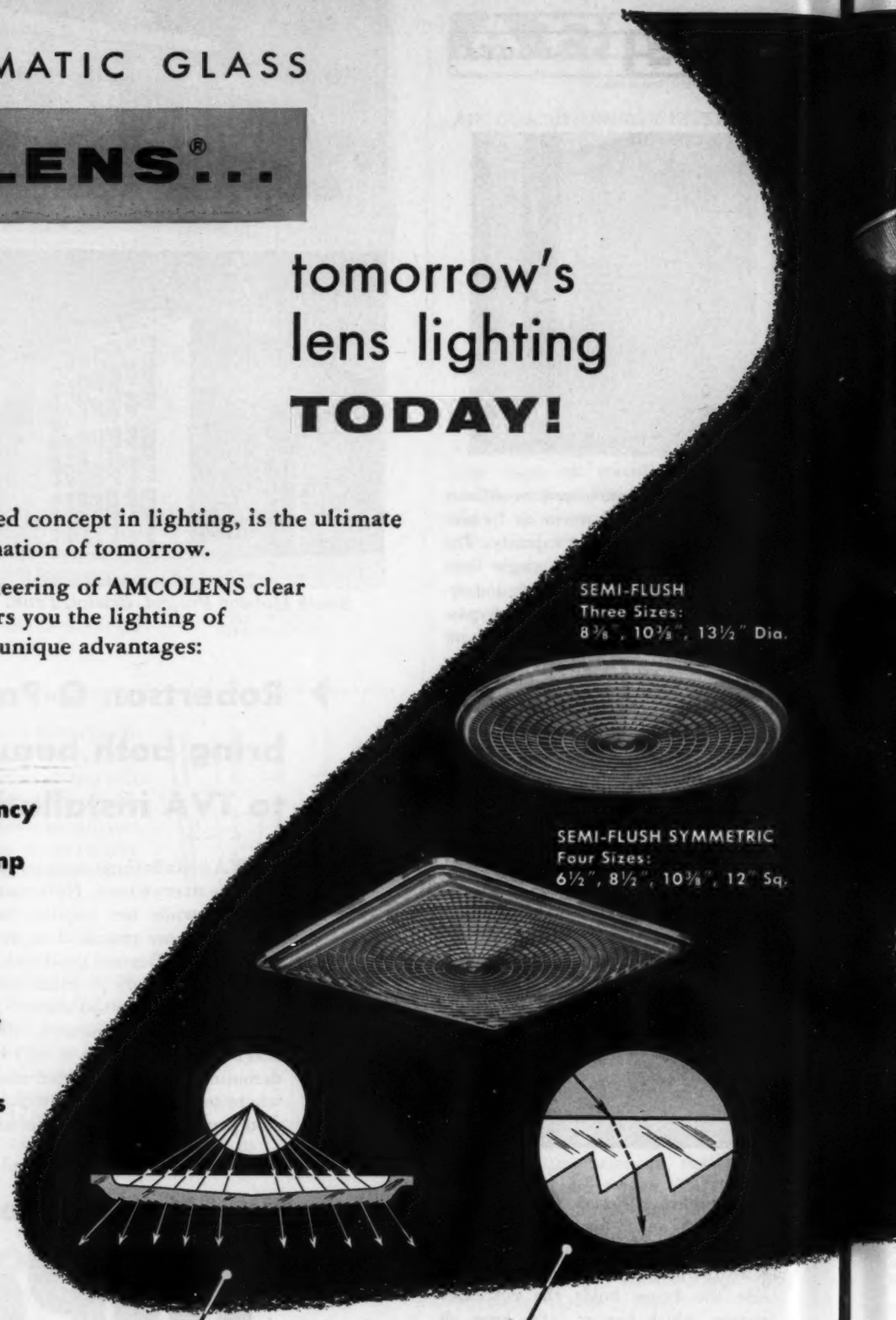
AMCOLENS®...

tomorrow's lens lighting TODAY!

AMCOLENS, an advanced concept in lighting, is the ultimate for the improved illumination of tomorrow.

The precision engineering of AMCOLENS clear prismatic glass lens offers you the lighting of the future with all these unique advantages:

- **Crystal clarity**
- **Undiminished light transmission efficiency**
- **Unaltered white lamp light transmittance**
- **Precise light direction control**
- **Predetermined light distributions**
- **Minimum brightness in glare zone**
- **Edge-light on ceiling for contrast relief**



This enlarged segment of Amcolens illustrates prism detail. AMCOLENS utilizes clear glass prisms, the most exact means known to science for controlling the direction of light.

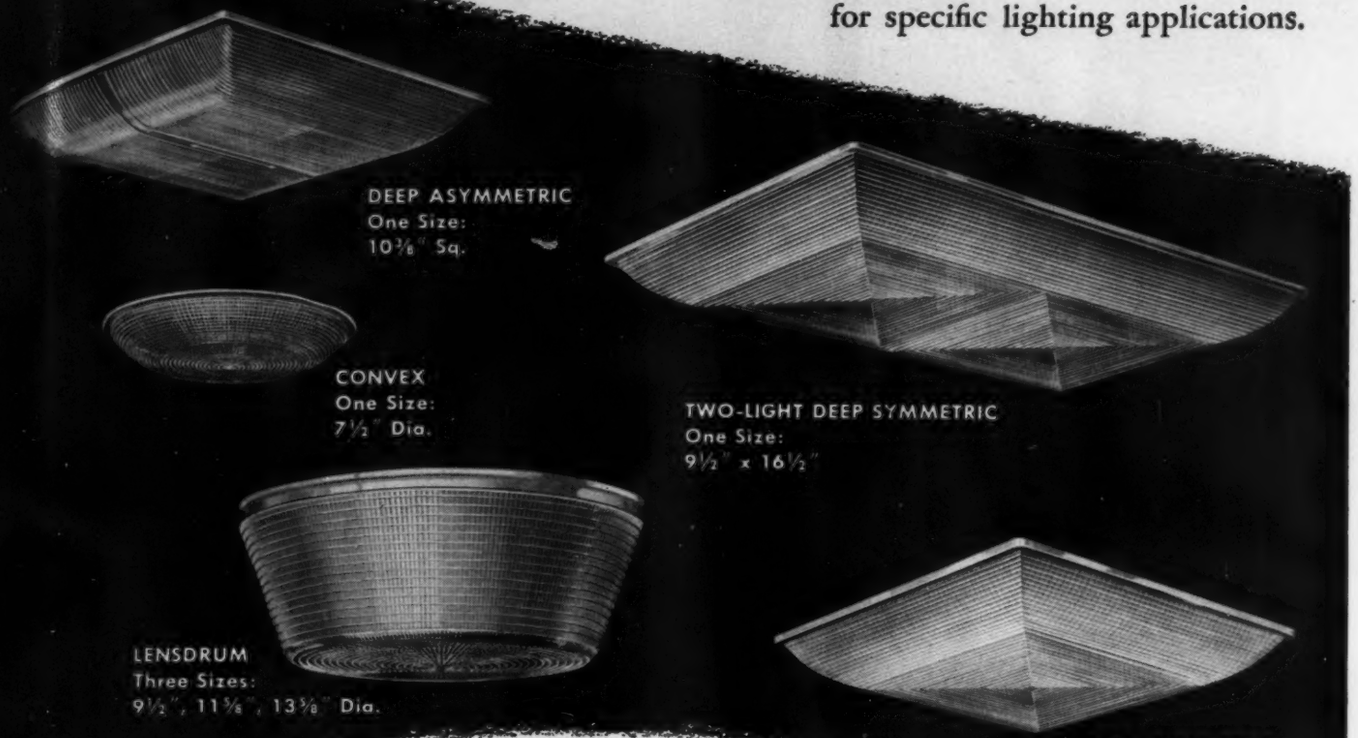
A cross section of a typical Amcolens shows control of light. Precision engineering achieves multiplied useful light utilization below 60° with minimized glare zone brightness.

AMCOLENSES are the result of original ART METAL lens research and are available only in ART METAL complete lighting equipments.

AMCOLENSES ARE ANOTHER *Lighting Research* DEVELOPMENT OF ART METAL

18 AMCOLENSES

are precision engineered
for specific lighting applications.



DEEP ASYMMETRIC
One Size:
10⅜" Sq.

CONVEX
One Size:
7½" Dia.

TWO-LIGHT DEEP SYMMETRIC
One Size:
9½" x 16½"

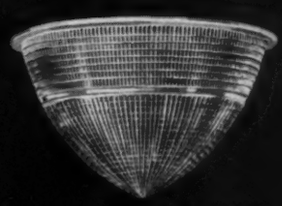
LENSDRUM
Three Sizes:
9½", 11⅝", 13⅜" Dia.

DEEP SYMMETRIC
Three Sizes:
8½", 10⅜", 12" Sq.

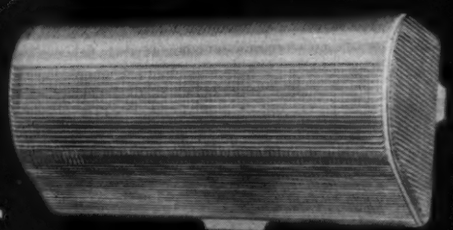
May we send the new catalog?

ART METAL Catalog 255, dedicated to the advancement of incandescent lighting through original research development, provides detailed information on Amcolens, plus factual data on all ART METAL lighting equipment with unbiased test data on lighting performance, evaluated by Electrical Testing Laboratories, Inc.

Write to:



AREALENS
One Size:
7½" Dia.



WALLENS
One Size:
11½" Length

THE PRODUCERS' COUNCIL

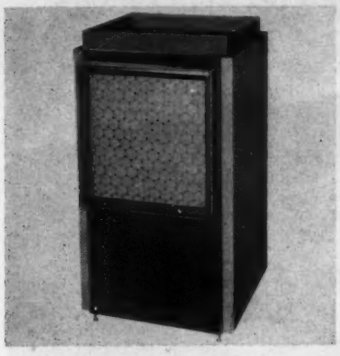
The **ART METAL** *Company*

CLEVELAND 3, OHIO

AE PRODUCTS

(*Continued from page 259*)

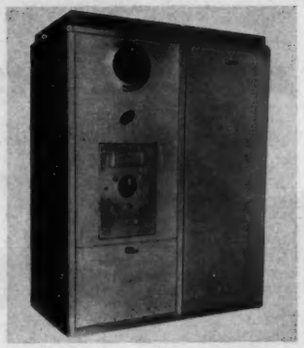
MORE AIR CONDITIONERS



• A *residential air conditioner* to cool a 5- to 7-room house has a water-cooled condenser which attaches to existing ductwork and is controlled automatically by the heating thermostat. Measuring 22 by 20 by 62 in., the unit includes a blower wheel, fan and plenum chamber. *Mitchell Mfg. Co., 2525 Clybourn Ave., Chicago, Ill.*

• *Williamson Console Airefrigeration* provides space or duct-type cooling, dehumidifying and air filtering. The unit has a 35-in.-high base section for direct connection to a forced air furnace with adequate blower. With an inadequate furnace blower, a blower unit is added. The waterless condensing unit is located outdoors, saving floor space and eliminating indoor compressor noise. *The Williamson Heater Co., 3500 Madison Rd., Cincinnati 9, Ohio.*

• *Combination heating-cooling units* for new or existing houses consist of 2- and 3-ton air- or water-cooled units with oil- or gas-fired furnaces. The models, available in 24 sizes, include all heating and cooling controls, blower and motor for heating and cooling cycle and a common top over heating and cooling plenum which contains factory-installed

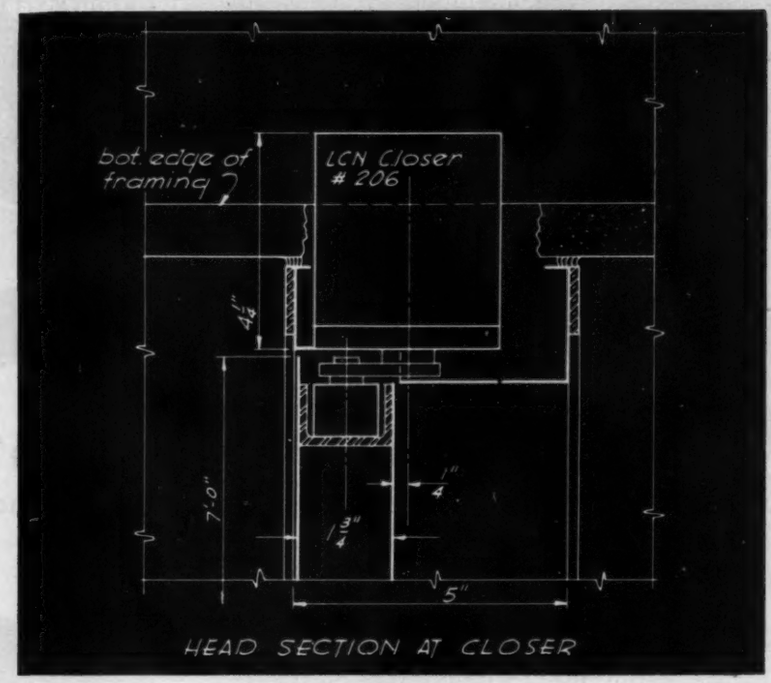


automatic dampers. *Shana Mfg., Inc., 188 West Randolph St., Chicago 1, Ill.*

SOLENOID GAS VALVE

A *solenoid gas valve*, with the power element mounted to a synthetic rubber base enclosed in a sound-deadening chamber, features a soft seat with compression spring closure. This construction reportedly eliminates transmission and radiation of sound to pipe, mounting structure or outer valve casing. The valves operate from a current of 0.4 amp and may be used with all types of gases. *White-Rodgers Electric Co., 1209 Cass Ave., St. Louis, Mo.*

(*Continued on page 267*)



CONSTRUCTION DETAILS

for LCN Overhead Concealed Door Closer Shown on Opposite Page

The LCN Series 200 Closer's Main Points:

1. Efficient, full rack-and-pinion, two-speed control of the door
2. Mechanism entirely concealed; arm disappears into door stop on closing
3. Hydraulic back-check prevents door's being thrown open violently to damage walls, furniture, door, hinges, etc.
4. Hold-open (optional) set at any one of following points: 85°, 90°, 100° or 110°
5. Easy to regulate without removing any part
6. Used with either wood or metal doors and frames.

Complete Catalog on Request—No Obligation or See Sweet's 1955, Sec. 17e/L

LCN CLOSERS, INC., PRINCETON, ILLINOIS

MODERN DOOR CONTROL BY LCN · CLOSERS CONCEALED IN HEAD FRAME
WAYNE ASSEMBLY PLANT, LINCOLN-MERCURY DIVISION, FORD MOTOR COMPANY
LCN CLOSERS, INC., PRINCETON, ILLINOIS
Construction Details on Opposite Page
Giffels & Vallet, Inc., L. Rossetti, Associated Engineers and Architects

INTRODUCING...the Classroom Furniture

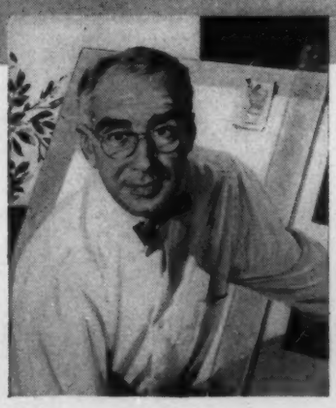
Samsonite puts light-hearted color

to help you turn out

* 4 BRILLIANT NEW COLORS...Terra Cotta! Turquoise! Brown! Grey!
* NEW COMFORT-CONTOUR DESIGN heightens student attention!
* NEW BEAUTY AND DURABILITY with Hard Wood or Plastic work surfaces!

The Mobile Samsonite *Open Front Desk* gives maximum storage space! Forms related unit with matching Pivot-Back chair.

New Samsonite *Pivot-Back Chair* has silent, rubber-cushioned glides, kick-proof "spats". Pivot-back swivels *silently*, adjusts to individual body contours.



Design magic of

Russel Wright

only with Samsonite Classroom Furniture!

NEW CATALOGUE

New Samsonite Classroom Furniture Catalogue. Complete specifications on new Samsonite Classroom Furniture. Fully illustrated in color. Write Shwayder Bros., Dept. P-9, Classroom Furniture Division, Detroit 29, Mich. for a copy and for the name of your nearest distributor.

# of Tomorrow...**TODAY!**

and comfort into your classrooms

brighter, happier students!

Created by Russel Wright and Samsonite ...never before has there been classroom furniture as exciting and practical as this!

4 Paint-Box Colors make classrooms bright and fun to work in! Tested on school officials in 30 states, the colors mix or match harmoniously, blend with every wall color!

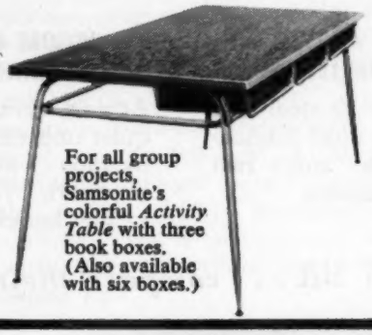
Shaped for Tomorrow! The gracefully curved contours are posture-designed to build healthy bodies, make attention less tiring, learning more fun!

Miracle of Mobility! Mix these units, move them room to room, with never a conflict in color or contour.

Mischief-Proof! Aluminum "spats" on legs defy kick and mop marks! Desk-lid hinges and countersunk "bumpers" can't be loosened, even with a screwdriver!

It's Not Expensive! Samsonite actually costs *less*...because it's strongest, lasts longest!

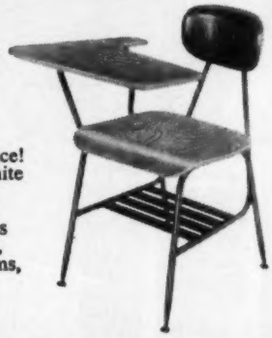
A new note in schoolroom furniture, Samsonite's *Circular Table* lends an informal, non-institutional look to the classroom!



For all group projects, Samsonite's colorful *Activity Table* with three book boxes. (Also available with six boxes.)

Samsonite's colorful *Lift-Lid Desk* is noiseless, slam-proof, tamper-proof. Fingers can't be caught between lid and book box.

Newness of line, brilliance of color, keynote Samsonite's *Teacher's Desk*. Maximum work and storage space!



290 square inches of writing surface! New Samsonite *Tablet Desk Chair* plays multiple roles in classroom, meeting rooms, lunchroom.

Samsonite *Student Desk* can also serve as table. Several can be pushed together for group projects.

New Samsonite *Trapezoid Table* adapts in groups to endless combinations for varied schoolroom activities.

New rolling contours in Samsonite's *Unit Chair!* Available with Samsonite's new *swivel back*. Back swivels to cradle every body movement!

Plenty of leg room and storage space! The Samsonite *Shelf Desk* brings modern color, graceful lines to the classroom.

Makers of the Famous Samsonite folding tables and chairs for every institutional use!

Samsonite...the Classroom Furniture that's **STRONGEST...LASTS LONGEST!**

SHWAYDER BROS., INC., CLASSROOM FURNITURE DIVISION, DEPT. P-9, DETROIT 29, MICH. Also makers of famous Samsonite Luggage and Card Tables and Chairs for the Home.

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. . . they're built of heavy gauge steel and completely hot-dip galvanized after fabrication. Finish can't be scratched, won't rust under severest operating conditions.

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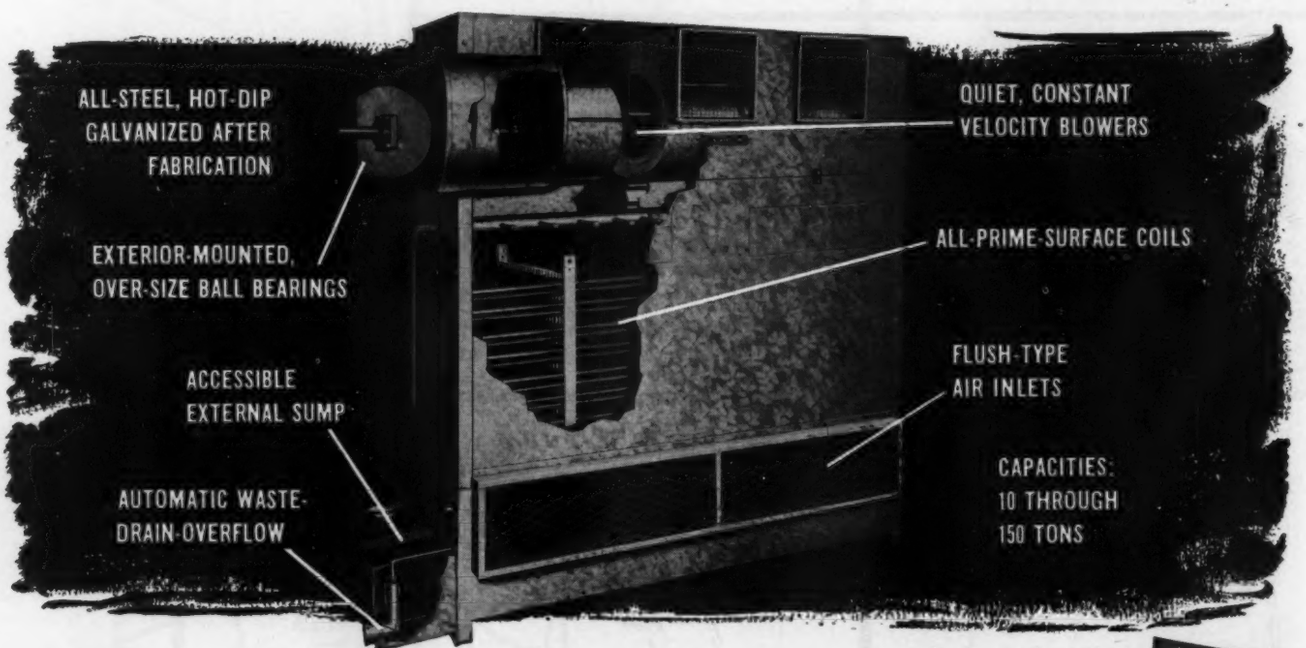
USE INDOORS OR OUTDOORS— WITH OR WITHOUT DUCTS

Acme's centrifugal blowers (not fans) are quiet and efficient in any indoor or outdoor location — have ample capacity for use with ductwork. You get "performance as rated" — and better!

and you'll like the **COMPACT SIZE** *. . . compare their space-saving dimensions!*



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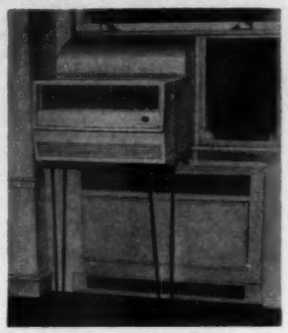
AE PRODUCTS

(*Continued from page 262*)

ROOM AIR CONDITIONERS



• "*Inside-the-glass-line*" room air conditioners cause no obstruction on the window sill and permit the window to be raised and lowered freely. The installation is 26 in. wide to permit maximum amount of window width. A small pane to the right of the air conditioner is hinged for easy access to the window sill. The installation is available in ½-, ¾- and 1-hp room air conditioner models. *Philco Corp., Philadelphia, Pa.*

• The *Consolaire air conditioner* features a new "Adjust-O-Mount" for fitting flush with the building line, flush with the window line. It can be adjusted up or down, in or out for any installation need. Since it is complete in itself, requiring no connections, and has no controls or air openings on the top or sides, it can be recessed in the wall or installed through the window. In ¾- or 1-hp models, it uses electric heating. *Remington Corp., Air Conditioning Div., Auburn, N. Y.*

• *Hotpoint pushbutton air conditioners* come in three new models of ¾-, 1- and 1½-hp capacities. In new exterior colors, the new models have an automatic thermostat which maintains the temperature desired. Rotating grilles permit different air directional combinations. *Hotpoint Co., 5600 West Taylor St., Chicago 44, Ill.*

(*Continued on page 270*)

*Cordley— para uma refrigerante bebida de água fresca

Architects and contractors the world over know that the client who demands the best requires Cordley drinking water coolers.

For a Cordley is no ordinary water cooler. It is the end result of sixty-five years of specialized effort devoted to the design, manufacture and sale of more than a million drinking water coolers. Every Cordley Electric Cooler is fully covered by a generous five-year guaranty.

Ask your nearest Cordley distributor (listed in the Classified Directory) for full specifications and installation data. Or write for Bulletin P-C4. Cordley & Hayes, 443 Fourth Ave., New York 16, N. Y.

Cordley NEW YORK

*Cordley—for a refreshing drink of cool water.

They're handle-free...you use a key

SMOOTH, FLUSH-TYPE ALL-STEEL INTERIOR DOORS add beauty to any modern office or school. A product of Republic's Truscon Division, these swing doors are installed in ⅓ the time usually required to hang conventional doors. They are dimensionally stable under all weather conditions—never stick or bind. Frames and hardware are included. All standard door-opening sizes are available. Ask your Truscon representative for additional information. Or mail coupon.

FOR BETTER "HOME ECONOMICS" DEPARTMENTS Republic Steel Kitchens are the choice of home economists everywhere. For beauty. For efficient planning. For work-saving convenience. Architects appreciate the flexibility of this line which permits unlimited freedom in planning custom kitchens economically from stock units. Republic Steel Kitchens are proving the pacesetter in modern kitchen design; assure you on-time delivery, uniform high quality, client satisfaction. Send coupon for details.

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LOCKERS PROVIDE AUTOMATIC LOCKING

Here's a locker with a memory! No matter how forgetful the occupant, he gets full-time, locked protection—*by simply closing the door.*

There is no handle, no locking routine to fuss with. A key unlocks the door . . . then serves as the handle for opening it. The instant the key is removed the door *pre-locks*—and locks *automatically* when shut. Papers, books, clothing and personal effects are always safe day and night behind locked tamper-proof doors.

The exclusive Key-Control locker system, developed by Republic's Berger Division, eliminates all need for handle maintenance, too. Locker fronts are clean and modern in appearance. They're flush and smooth, offer no noise-inviting projections.

Before you specify any locker system for new schools or other institutions, investigate Republic's revolutionary Key-Control. Your local Berger representative will be happy to arrange an interesting demonstration. He can also offer architects, school administrators and other officials a complete planning and installation service, including technical and engineeering assistance. Furthermore, Berger assumes full responsibility for proper installation—from start to finish.

Republic's Berger Division is the world's leader in lockers. Only Berger can offer Key-Control—plus the largest selection of standard steel lockers—plus competent engineering and installation assistance. Send coupon for detailed information.

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EASY-TO-FORM TRUSCON METAL LATH is readily adaptable to every kind of architectural treatment—no matter how intricate. It's lightweight, erects quickly, is fire-resistant. Big Truscon line includes more than 40 kinds of metal lath and accessories, all available for rapid delivery through building-supply dealers, backed by Truscon's dependable warehouse service. Send coupon for illustrated literature describing complete line.

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FILON is produced by a fully automatic, electronically controlled process, in the world's largest and most modern plant in its field. This method makes possible continuous lengths as well as all standard sizes of panels. Lengths are limited only by convenience in handling.

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Better impregnation and dispersion of pigments make FILON more uniform in thickness and color. Every FILON panel bears a label stating *type, grade,* and *color* ... your assurance of getting the quality you specify.

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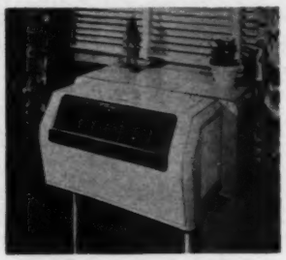
A|E PRODUCTS

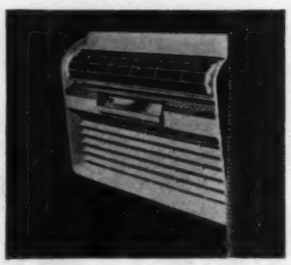
(*Continued from page 267*)

ROOM AIR CONDITIONERS

• The *Yorkaire room air conditioner* is a new 1½-hp model of the line of eight styles and 24 models of York conditioners. They can be installed in windows, in transoms or through the wall. *York Corp., York, Pa.*



• An *inside-the-glass-line air conditioner* for narrow windows down to 33½ in. rolls away from the window on tracks, giving the window washer access to both sides of the window. The unit is available in ½-, ¾-, 1- and 1½-hp capacities. *Perfection Stove Co., 7609 Platt Ave., Cleveland 4, Ohio.*



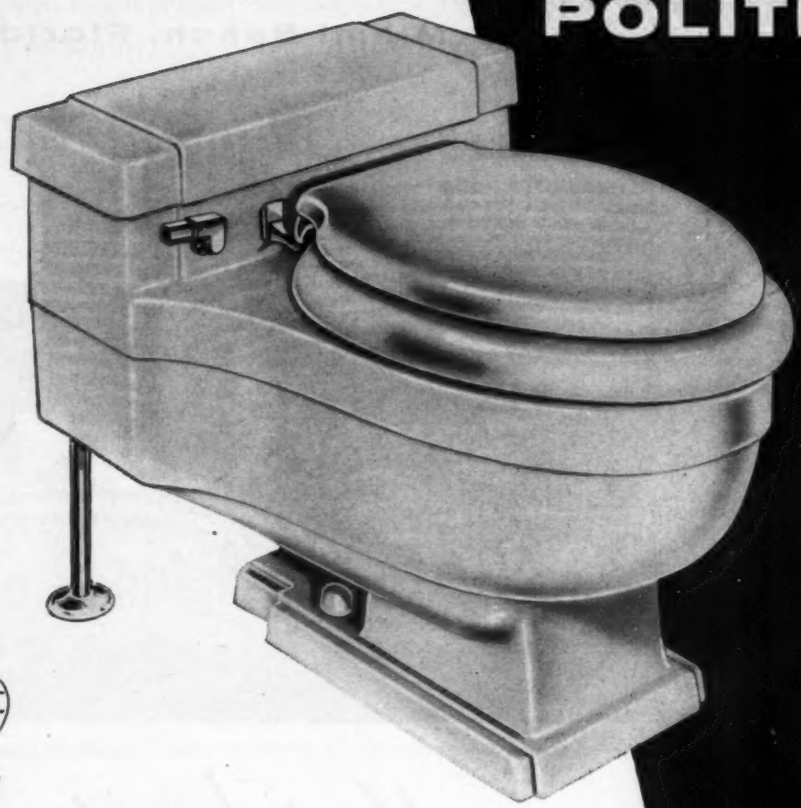
• *Fresh'nd-Aire air conditioners* in three series — Deluxe, Custom and Standard — have push-button controls and feature flexible mounting arrangements. They can be installed flush on the inside of the room, with interior cabinet extending into the room less than 3 in., flush on the outside of the building, or in any position. *Cory Corp., 221 No. La Salle St., Chicago 1, Ill.*

WINDOWS

• An *aluminum double-hung window* is counterbalanced by concealed adjustable spiral balances for easy operation. Stainless steel and rubber weatherstripping provide insulation, and a sweep lock offers protection against forced entry. Rubber glazing extrusion is designed to hold glass firmly and keep it air- and water-tight. *The Steelcraft Mfg. Co., Possmyne, Ohio.*

(*Continued on page 274*)

THE WATER CLOSET THAT FLUSHES POLITELY



We invite you and the people you serve to become more closely acquainted with the water closet that flushes politely. It's the famous CASE Non-Overflow One-Piece* water closet with the WHISPERING FLUSH. Because it's the finest available, you'll build your profits and your reputation every time you install a CASE One-Piece.

You get customer-winning features like non-overflow bowl; safe-guarding antisyphon ballcock; pressurized cleansing rim flush; large water area; healthful seat height; streamlined, up-to-the-minute design, time tested, with the whispering flush already known throughout the Building and Plumbing industry.

Remember, you can offer the CASE One-Piece water closet in 32 pastel colors and sparkling black and white... the widest vitreous china color selection on the market. Check your Case distributor in the "Yellow Pages" or write:

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An Architectural Achievement

The Fabulous Fontainebleau Hotel

Miami Beach, Florida

Congratulations to architect *Morris Lapidus*

It's been a long time since any new building caused so much public and industry acclaim. The Fontainebleau is truly a monument to gracious living. The 14 million dollar beauty comprises 565 rooms including luxurious suites, a large ballroom, 4 bars and 3 restaurants. It includes 265 cabanas stretched out on 1,000 feet of ocean front and a 50 x 150 foot swimming pool, plus a large variety of sports facilities. It was designed to combine modern functional beauty with continental warmth and an atmosphere of intimate luxury. Naturally, the Fontainebleau is equipped with famous Westinghouse water coolers.

Architect MORRIS LAPIDUS, A.I.A., made sure with

Westinghouse Water Coolers

—The choice of leading architects and construction engineers from coast to coast. Westinghouse prizes this ever-rising vote of confidence. Their appreciation is built into every new 1955 water cooler in the form of even greater efficiency and dependability.

Dual Electric Control

— Only Westinghouse offers the convenience of both finger tip and toe tip bubbler control at no extra cost . . . with electrically operated solenoid water valve that ends valve stem packing leaks and reduces wear and maintenance.

No Spurt—No Splash!

With the Westinghouse Automatic Stream Height Regulator, you are always assured a proper drinking stream—without squirt or dribble—regardless of normal variations in water pressure. The regulator is built into the bubbler-assembly for maximum control and ease of adjustment.

Complete Reliability!

The Westinghouse Hermetically-Sealed Refrigeration System is tamper-proof, service-free and assures a long life of trouble-free operation. All of the 14 models are backed by the Westinghouse 5-Year Guarantee Plan.

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It's designed to aid you in specifying the number, type and location of water coolers for your clients. Check the yellow pages of the telephone directory for your nearest Westinghouse Water Cooler Distributor . . . or drop us a line.

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WWE14B 14-gallon Water Cooled Explosion-Proof

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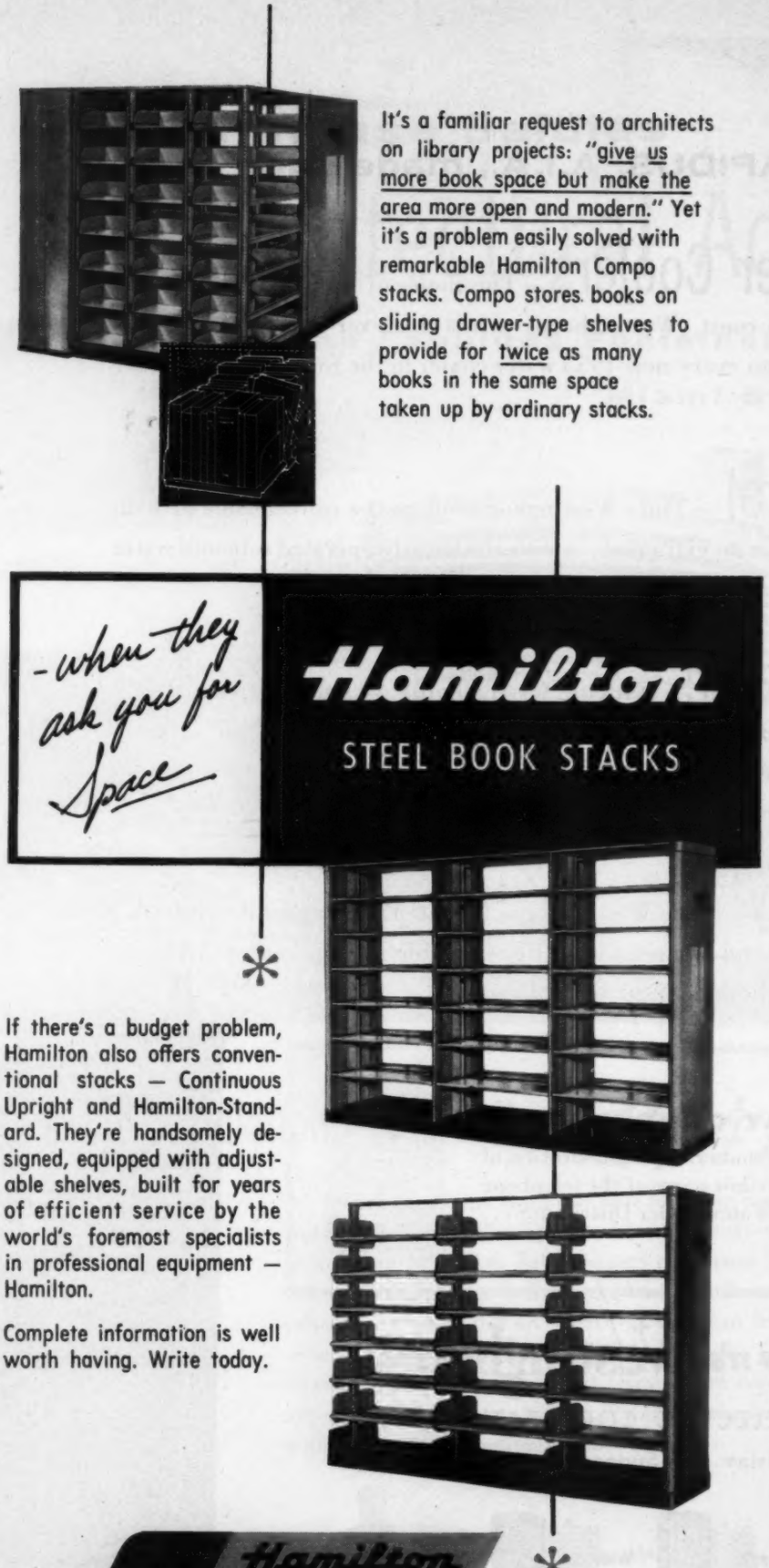
It's a familiar request to architects on library projects: "give us more book space but make the area more open and modern." Yet it's a problem easily solved with remarkable Hamilton Compo stacks. Compo stores books on sliding drawer-type shelves to provide for twice as many books in the same space taken up by ordinary stacks.
- when they ask you for Space
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STEEL BOOK STACKS
If there's a budget problem, Hamilton also offers conventional stacks — Continuous Upright and Hamilton-Standard. They're handsomely designed, equipped with adjustable shelves, built for years of efficient service by the world's foremost specialists in professional equipment — Hamilton.
Complete information is well worth having. Write today.
Hamilton
LIBRARY EQUIPMENT

HAMILTON MANUFACTURING COMPANY · Two Rivers, Wisconsin

AE PRODUCTS

(*Continued from page 270*)

• A *double-hung aluminum window* furnished in a full range of sizes offers a sloped sill for improved drainage with a continuous condensation lip at the sill. *Neoprene* and stainless steel weatherstripping provide insulation. *Reynolds Metals Co., 2500 S. Third St., Louisville, Ky.*

• A *double-hung removable window*, fully counterbalanced and weatherstripped, accommodates all standard storm sash and screen. *The Silcrest Co., 100 Thomas St., Wausau, Wis.*

• A *jalousie window with reinforced precast concrete frame* is sized to conform with modular plans, is shipped complete and is easily installed. Said to be permanently watertight, the window requires no caulking. Storm sash and shutters can be installed in the concrete frames without affecting operation of the glass jalousies. *Engineered Products, Inc., 1064 E. 29th St., Hialeah, Fla.*

MERCHANDISING SYSTEM

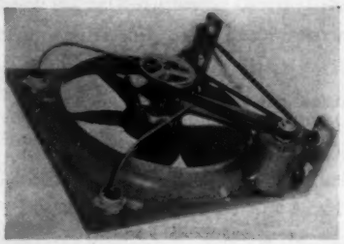
Shop-O-Mat merchandising system offers automatic replacement of merchandise. The merchandise is gravity-fed on steel runways and operates on a rotation system which assures that the first item in will be the first sold. The system is readily adapted to all foods, drugs and other packaged items in jars, cans, cartons, boxes, bottles, tins and tubes. The installation pictured above is a front-loading drug-o-mat with sliding shelf. *North American Equipment Corp., 250 Vreeland Ave., Paterson, N. J.*

AE PRODUCTS

SKYLIGHT

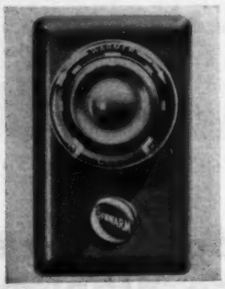
An *extruded aluminum skylight* using ¼-in. wire obscure glass lights this gymnasium of the junior high and grade schools in Woodstock, Ill., designed by Bradley & Bradley, Architects, Rockford, Ill. The skylight, 84 ft long and 13 ft wide, has a 15-deg pitch to blend with the roof. *Super Steel Products Co., 1244 N. 14th St., Milwaukee 12, Wis.*

ATTIC FAN



The *VT vertical discharge attic fan* has been designed for homes having living space floor area of 1000 sq ft or less. The fan is reportedly engineered for quiet operation, as all moving parts are soundproofed. *McLean Engineering Laboratories, P. O. Box 531, Princeton, N. J.*

THERMOSTAT



The *Sunwarm Comfort-Ease thermostat*, designed for electric radiant heating systems, utilizes a hydraulic action element. It features a cup and diaphragm directly exposed to the air and to the radiant effects on panel heat. It reportedly maintains a balance between air temperature and surface temperature and is not affected by altitude, humidity or other local conditions. *Sunwarm, Inc., Kingsport, Tenn.*

(Continued on page 278)

However challenging the demands of your next laboratory project might be, Hamilton has anticipated them — with the most complete and flexible equipment ever built. New All-Science tables in six handsome finishes for modern against-the-wall, open-center floor plans. Popular All-Purpose equipment for varying classroom needs. Equipment custom-built for institutions and industry, and "packaged" laboratories, too.

— when they ask you for Versatility

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LABORATORY EQUIPMENT

This awareness of laboratory requirements is no accident. Hamilton engineers work constantly in the field with science instructors, technicians, administrators and builders. For consultation with such an engineer, and/or more equipment information, please write today, without obligation.

HAMILTON MANUFACTURING COMPANY · Two Rivers, Wisconsin

HERE'S HOW THESE 3 SPACE PROBLEMS WERE SOLVED

AT INDIANA UNIVERSITY'S NEW MEDICAL CENTER*

*Eggers & Higgins, Supervising Architect
Edward D. James, Architect
J. L. Simmons Company, Inc., Builders

PROBLEM 1

Cafeteria dining room must serve as many as 1000 students at once—yet be adaptable for medium size banquets, meetings and student activities. Only a portion of the total area would be used for breakfast and dinner. Closing off the unused area was desirable to save on heating, table setting labor and to provide a closer, friendlier atmosphere.

PROBLEM 2

One oversized room must serve primarily as the main lecture hall and as a suitable setting for University receptions. However, to obtain maximum use from this large area—could it also be used as a social room by the students? And how could the space be effectively partitioned for private conferences, parties, teas and small meetings?

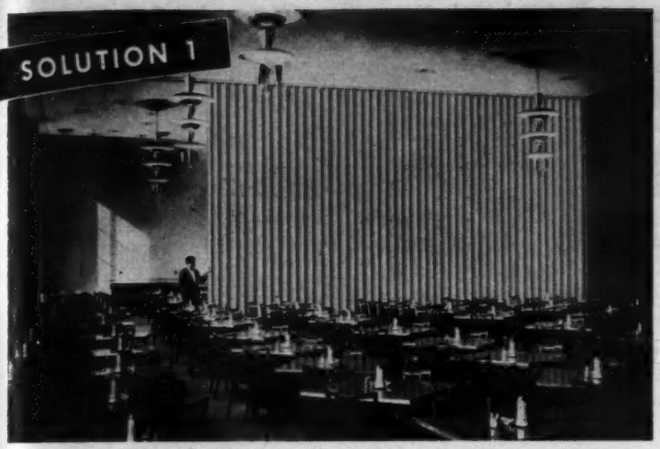
PROBLEM 3

One large classroom must provide seating capacity of approximately 75—and be promptly convertible, after conclusion of group lectures, into smaller, private rooms for seminars. Between classes, the division of the total area should be flexible enough to provide accommodations for staff meetings, lectures and displays of widely varying sizes.

Let FOLDOOR Help Solve Your Space Problems

In one section alone of the Indiana University Medical Center (the Student Union and Food Service Building), more than 1100 events were held in a recent 9-month period—proof that FOLDOOR offers a prime way to obtain maximum use of floor space and flexibility at the lowest possible cost. It saves on the cost of walls and partitions, the expense of painting, trimming and hardware. FOLDOOR also brings extra income through multi-purpose use of space in institutions, schools, funeral parlors, hotels and other commercial establishments. For details, see Sweet's File—or your nearby FOLDOOR installing distributor.

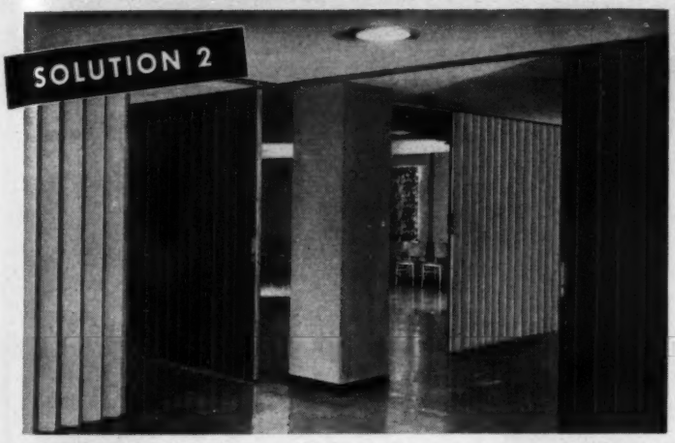
SOLUTION 1



RESULT 1

FOLDOOR proved the only practical solution to the problem of dividing this large dining space into two distinct areas. While a banquet is being served in one room, a meeting, a student dance—or even another banquet can be held in the other room at the same time. The spectacular (20′ by 48′ 10″) motor-driven FOLDOOR installation opens and closes at a rate of 35 feet per minute and stores in a pocket.

SOLUTION 2



RESULT 2

As many as four private dinners have been served at one time in this large room, partitioned by four FOLDOORS. When a tea or reception is scheduled, one or more of the doors are folded back so the space will fit the size of the group. During a dance or other large student function, all four doors are stored against the wall and the entire floor area is available.

SOLUTION 3

RESULT 3

After a lecture, this classroom is immediately divided by FOLDOORS into three private areas for more individual student instruction. If the class needs only a portion of the room, the unused part can be closed off and used for other purposes. The flexibility obtained by FOLDOOR also permits the classroom to serve as an excellent location for large or small conferences, as well as University receptions and banquets.

You Get More When You Specify FOLDOOR

Stacks into 1½″ per foot of opening—that's less than any similar door • designed structurally for its largest size, so all doors have the same strong construction. Welded frame provides 100% pantagraph action • has no "air bellows" action that prevents easy operation, distorts fabric • includes an attractive cornice, where desirable, at no extra cost • has a size for every opening, a type for every need • offers a large selection of colors in either commercially popular smooth fabric or the deluxe fabric that looks and feels like cloth, yet wears and washes like vinyl

HOLCOMB & HOKE MANUFACTURING COMPANY, INC.
1545 Van Buren Street, Indianapolis, Indiana
IN CANADA: FOLDOOR of Canada, Montreal 26

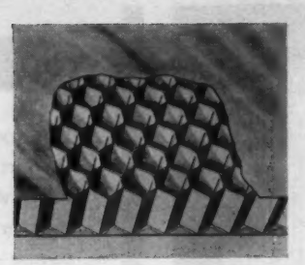
HOLCOMB & HOKE
FOLDOOR
THE SMARTEST THING IN DOORS

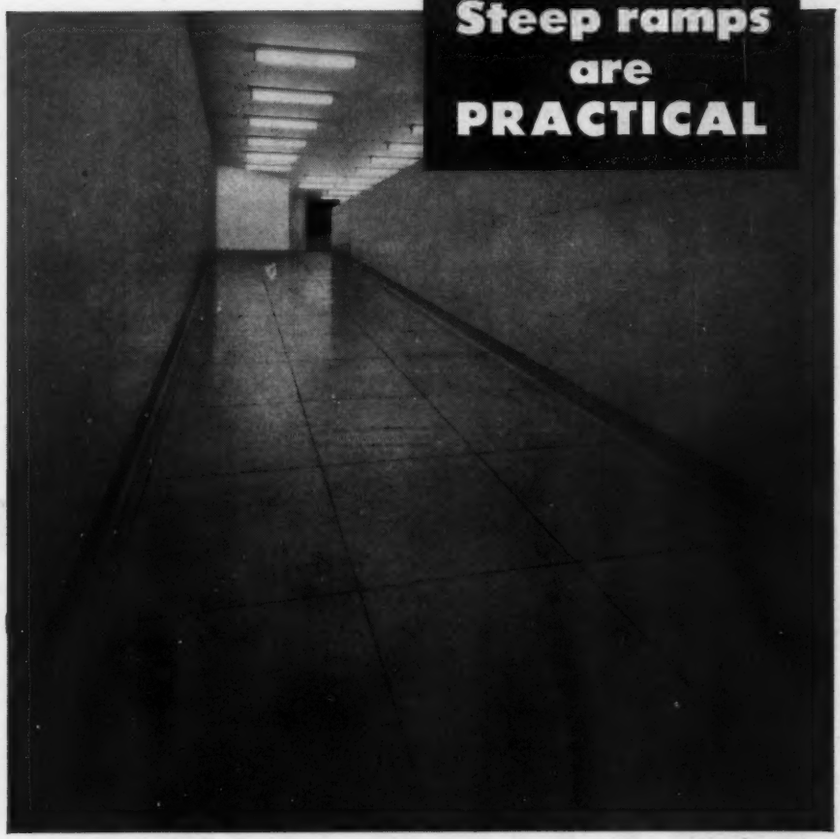
THE PRODUCERS' COUNCIL

(*Continued from page 275*)

MOVABLE METAL WALLS

Lightweight movable metal walls offer structural stability along with low maintenance requirements and maximum mobility. *Mills Executive Partitions* are available in standard heights, from door-height units to 10-ft cornice-high units and in multiples of 6-in. widths up to 60 in. wide. Panels are 2¾ in. thick, formed of two sheets of steel bonded to a honeycomb insulating core. The partitions are made in all-steel as well as in steel and glass combination units and are available in any specified color. *The Mills Co., 995 Wayside Rd., Cleveland, Ohio.*





...when the terrazzo is made non-slip by ALUNDUM Aggregate

THIS long steep ramp in the Toronto subway is practical — even in wet weather — because the engineers specified terrazzo made permanently non-slip by Norton ALUNDUM Aggregate. And the hardness and toughness of the ALUNDUM Aggregate also provides exceptional durability to withstand the heavy subway traffic.

See our catalog in Sweets or write for a copy of No. 1935R.

NORTON COMPANY
Worcester 6, Mass.

NORTON
NON-SLIP AGGREGATE

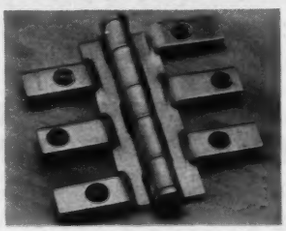
GARAGE DOORS

• *Garage doors*, available in eight basic designs made by applying 2⅛-in.-wide moulding of varying lengths to the face of the door, come in four standard sizes: 8 by 7 ft; 9 by 7 ft; 16 by 7 ft and 18 by 7 ft. The Berry Custom Garage Door includes sound-deadening sponge, nylon rollers and adjustable track hangers. *Steel Door Corp., 359 S. Jessie St., Pontiac, Mich.*

• *Frameless steel garage doors* for residential use have recently been patented. In the *Taylor Made Garage Doors*, framing members are an integral part of the face sheet creating a rigid and lightweight construction. *Taylor Made Garage Doors, 12430 Evergreen Rd., Detroit 28, Mich.*

• *A one-piece garage door* offering heavy-duty *Mon-O-Matic* rust-proof hardware, an automatic cylinder lock and a crank shaft arm that eliminates sway and assures perfect balance and weathertightness, is reportedly easy to install and economical. The *Mon-O-Dor* is available in 8- by 7-ft stock size. *Howell Mfg. Co., Hasbrook and Cottman Sts., Philadelphia, Pa.*

NON-MORTISE HINGE



A *non-mortise hinge* for wood residential doors up to 1⅜ in. thick reportedly offers perfect alignment. The hinge, which is made of heavy gauge wrought steel, is available in three finishes — dull brass plated, nickel plated and bonderized prime coat. *McKinney Mfg. Co., 1715 Liverpool St., Pittsburgh 33, Pa.*

(*Continued on page 282*)

your ceiling planning comes to life with the new troffers

by Smithcraft

From drawing board to reality is now a simple transition in the creation of architecturally beautiful ceilings with recessed lighting. The new Smithcraft Troffer presents a clean, trim, uncluttered appearance because for the first time in troffer lighting *there are no visible catches, latches, bolts or screws.* Perfectly straight, trim, in-line rows free from light leaks or blemishes are formed with new Smithcraft Troffers which are *architecturally precise modules for exactly 12" openings.* Adaptability to today's ceiling constructions is virtually universal *(a single simple clip adapts the Smithcraft Troffer to most ceiling conditions and simple provisions are made for all others.)* A new flexibility of design is provided through the *widest possible choice of shielding media, pattern lighting methods and accenting troffer boxes.*

This mounting bracket with simple clip attachments adapts the Smithcraft Troffer to a great majority of the ceilings in use today.

The new Smithcraft troffer-in-plaster frame method assures perfectly square plastered openings and is unbelievably simple to install.

Write today for the new Smithcraft Troffer Book illustrating and describing the new Smithcraft Troffers in detail.

Door frame containing glass, plastic or lens instantly opens or closes by simple pressure upwards.
In louvered units, louvers hinge from either side and are removed without tools or loose parts.
Smithcraft
LIGHTING DIVISION

"BUY LIGHTING" — NOT FIXTURES — INVEST IN AMERICA'S FINEST FLUORESCENT LIGHTING

Windows with eyebrows provide glareless daylighting with eye-resting views

Concrete canopies over Ceco Windows provide adequate diffused daylight for visual acuity and eliminate glare.

Architects create a laboratory as rugged as the Rockies — choose Ceco-Meyer Concrete Joist Construction for rigidity . . . for resistance to wind loads and seismic forces . . . for economy

Architects Pereira & Luckman achieved a unique design when they made forthright use of standard products in creating the Radio Propagation Laboratory, U. S. Bureau of Standards, Boulder, Colorado. With the majestic Rocky Mountains as a backdrop, it was fitting that aesthetics be combined with ruggedness, in a functional, fire-safe structure. Imagination accomplishes the unusual in window treatment. Ceco Steel Architectural Projected Windows are positioned in the openings to obtain best diffusion of daylight. Concrete canopies eliminate glare. Clear glass allows occupants to rest their eyes by focusing on distant views. Window types provide optimum ventilation.

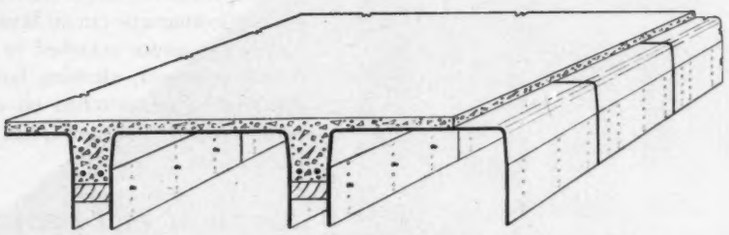
Concrete joist construction was chosen as the best framing method for the building. Less concrete and steel were used than in other monolithic concrete constructions. Reduced deadweight permitted lighter columns and footings. The contractor selected Ceco-Meyer Adjustable-Type Steelforms for the job. The Boulder Radio Propagation Laboratory is another example of Ceco's performance on the architect-engineer-contractor-supplier team. Ceco offers you similar structural engineering and window product services, including erection . . . for *your* next building project. Consult nearest Ceco office or Sweet's files.

CECO STEEL PRODUCTS CORPORATION

Offices, warehouses and fabricating plants in principal cities. General Offices: 5601 West 26th Street, Chicago 50, Illinois

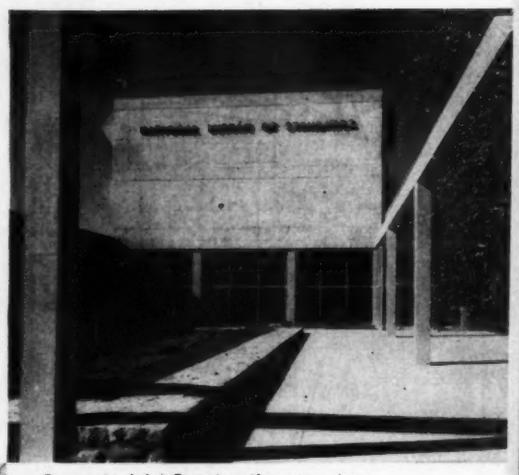
IN CONSTRUCTION PRODUCTS CECO ENGINEERING MAKES THE BIG DIFFERENCE

Radio Propagation Laboratory—U.S. Bureau of Standards, Boulder, Colorado; Architects – Pereira & Luckman; Associate Architect—Robert Ditzen; Contractor—Olson Construction Company



Typical arrangement of Ceco-Meyer Adjustable-Type Steelforms, showing simplicity of erection. Proper joist depth is obtained by nailing through selected holes into the soffit form.

CECO STEEL



Concrete Joist Construction was also used in the roof of the open walkway.

Abundant daylight is provided by window arrangement in clerestory and at work level. Clerestory windows are mechanically operated. Concrete joist ceiling was formed with Ceco-Meyer Steelforms.

DESIGNED AND CONSTRUCTED UNDER THE SUPERVISION OF GENERAL SERVICES ADMINISTRATION, PUBLIC BUILDING SERVICE

AE PRODUCTS

(*Continued from page 278*)

CERAMIC SIDING

Ceramo siding, an asbestos cement base with a glazed ceramic surface, is available in sherwood green, gray, brown, white and sage green. The manufacturer claims that the ceramic surface seals out moisture and dust and can be cleaned with ordinary household detergent. *The Philip Carey Mfg. Co., Dept. 8-G, Cincinnati 15, Ohio.*

UNDERFLOOR ELECTRIC RACEWAY

New, large-capacity, underfloor electric raceways have been developed to provide for future electrical expansion or rearrangements of machines without power famine. Pre-set inserts in the duct provide evenly spaced outlet points for standard connections to machines or equipment. Strong, 14-gauge steel construction is usual.

Powerduct, shown right, is furnished in 10-ft lengths and is installed with junction boxes, couplings and self-leveling supports on form, slab or fill prior

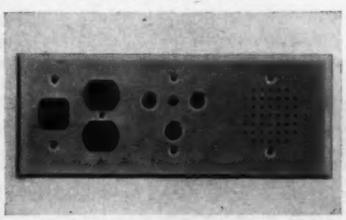
to pouring the finished floor. The oval-shaped duct has a 17-sq-in. cross section, which accommodates 4½-in. conduit easily and cables up to 500,000 circular mils. *Walker Bros., Underfloor Div., Conshohocken 4, Pa.*

Industrial Nepcoduct, pictured above, is also furnished in 10-ft lengths and has a 4- by 4-in. cross section. Threaded outlets are provided on 24-in. centers. *National Electric Products Corp., Gateway Center, Pittsburgh, Pa.*

CIRCUIT BREAKER SWITCH

A *100-amp circuit breaker safety switch* is designed for service on 120/240 volts AC, in two- or three-wire installations. It incorporates two single-pole *Heinemann* hydraulic-magnetic circuit breakers with handle extensions attached to form one double-pole unit, allowing both circuit breakers to be switched on or off together. *Heinemann Electric Co., 251 Plum St., Trenton 2, N. J.*

ELECTRICAL FACE PLATES



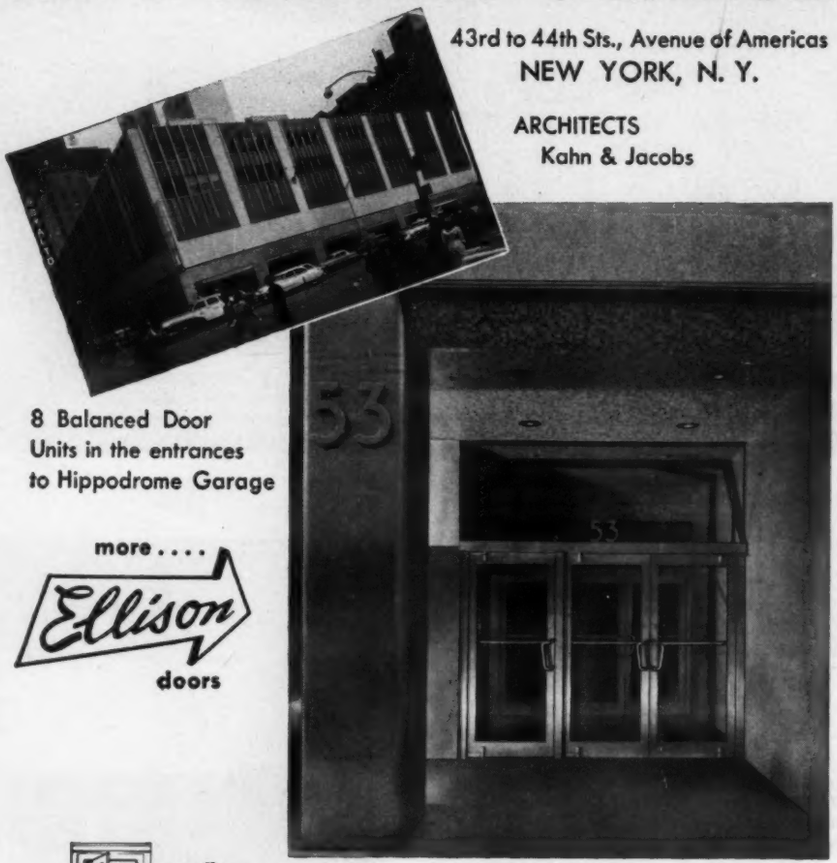
Special face plates for electrical outlet boxes are available from one- to six-gang with outlets in any desired sequence. Sizes over six-gang are supplied on special order only. Plates are made of 0.036-in.-gauge stainless steel, satin-finished and lacquer-coated. *Colonial Electric Co., 11462 Euclid Ave., Cleveland 6, Ohio.*

(*Continued on page 286*)

HIPPODROME GARAGE

43rd to 44th Sts., Avenue of Americas
NEW YORK, N. Y.

ARCHITECTS
Kahn & Jacobs



8 Balanced Door Units in the entrances to Hippodrome Garage

more....
Ellison
doors

The Door that lets TRAFFIC through QUICKLY

Ellison
the BALANCED DOOR

ELLISON BRONZE CO.
Jamestown, New York
representatives in 73 principal cities in the United States and Canada

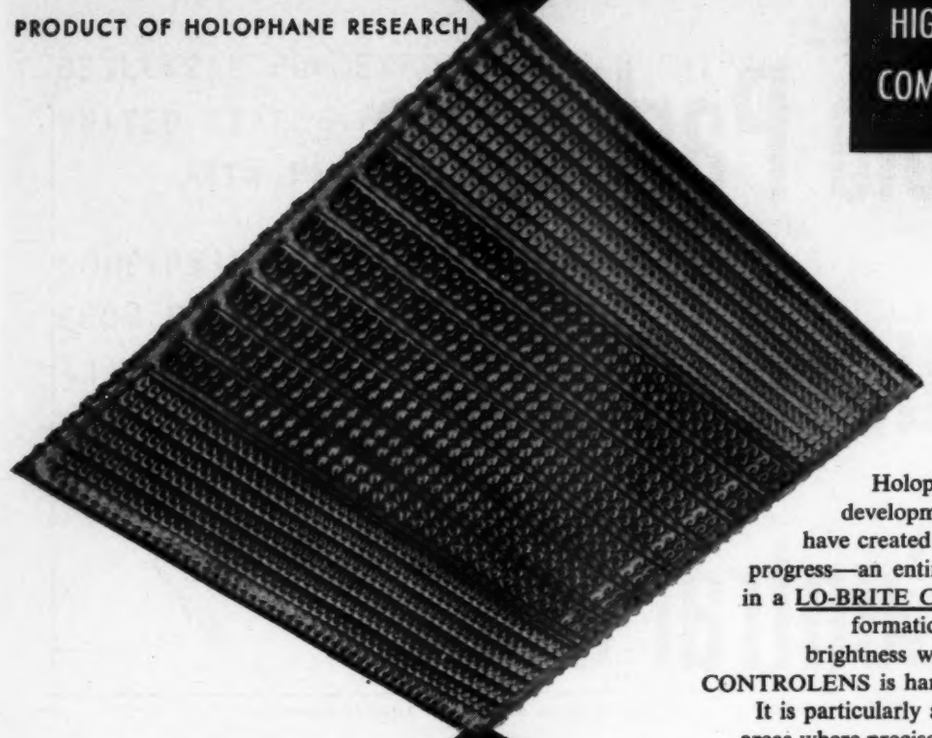
NEW 9026
by HOLOPHANE

PRODUCT OF HOLOPHANE RESEARCH

GREATER VISIBILITY

HIGHER COMFORT

EXTRA EFFICIENCY



LO-BRITE* CONTROLENS*

Holophane engineers, pioneers in the development of lenses for illumination, have created another contribution to lighting progress—an entirely new prismatic construction in a LO-BRITE CONTROLENS . . . The unusual formation of the prisms provides lowest brightness with highest visual comfort. This CONTROLENS is hand pressed by skilled craftsmen. It is particularly adaptable to modern low-ceiling areas where precise control of light is so important; also highly effective for continuous runs . . . It is recommended for a wide variety of locations: offices, showrooms, stores, schools, libraries, laboratories and other modern installations . . . Write us for a list of lighting manufacturers who use the LO-BRITE CONTROLENS as part of their equipment.

*®

Holophane

For Better Lighting
BE SPECIFIC . . .

HOLOPHANE

HOLOPHANE COMPANY, Inc.
Lighting Authorities Since 1898
342 MADISON AVENUE, NEW YORK 17, N. Y.
The Holophane Co. Ltd., The Queensway, Toronto, Ont.

Weldwood Movable Partitions to be used in new Ford Central Staff Office Building

Ford Motor Company orders over 6 *miles* of Weldwood Movable Partitions — the *only* partitions that combine the beauty of real wood with low-cost *movability*.

Early next year in Dearborn, Michigan, a magnificent new administration building will be completed to house the complex nerve centers of a modern industrial giant. Designed by architects Skidmore, Owings and Merrill, it will take full advantage of the latest advances in office planning and technology. Naturally it will have movable office partitions.

Weldwood Movable Partitions throughout the building provide 4 advantages:

1. The beauty of fine hardwood paneling adds warmth and dignity that are important factors in employee morale. The handsome wood paneled look complements any decorating scheme.

2. New offices overnight. Weldwood's unique metal key construction locks panels together firmly, yet allows rearrangement by the regular maintenance crew.

3. No painting—no redecorating. Occasional cleaning and waxing is the only maintenance needed! Weldwood hardwoods, such as Weldwood Korina® being used for the Ford installation, look like new indefinitely.

4. Fire resistant Weldrok® panel core is a sound barrier. It's *twice as effective* as a 2 x 4 stud partition with metal lath and plaster on both sides.

SEND THE COUPON for more details or call any of the 82 United States Plywood or U. S.-Mengel Plywoods showrooms in principal cities.

CLASS OF SERVICE
This is a fast message unless its deferred character is indicated by the proper symbol.

WESTERN UNION
TELEGRAM

W. P. MARSHALL, PRESIDENT

1201

SYMBOLS
DL = Day Letter
NL = Night Letter
LT = International Letter Telegram

The filing time shown in the date line on domestic telegrams is STANDARD TIME at point of origin. Time of receipt is STANDARD TIME at point of destination

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UNITED STATES PLYWOOD CORP= 1955 MAR 9 PM 3 23
ATTN PARTITION DEPT NYK=

CONFIRMING TELEPHONE CONVERSATION HAVE RECEIVED ORDER FROM FORD MOTOR COMPANY FOR APPROXIMATELY 33.000 LINEAR FEET OF WELDWOOD MOVABLE PARTITIONS. WILL BE INSTALLED IN NEW FORD CENTRAL STAFF BUILDING NOW UNDER CONSTRUCTION. DETAILS WILL FOLLOW=

I G JAMES PRESIDENT DETROIT PARTITION CO=

THE COMPANY WILL APPRECIATE SUGGESTIONS FROM ITS PATRONS CONCERNING ITS SERVICE

Another new Weldwood Movable Partition installation— at the Milwaukee offices of the Wisconsin Telephone Company.

Natural birch Weldwood Movable Partitions in private offices of Wisconsin Telephone Co., Milwaukee, Wisconsin.

Designed by Grassold, Johnson and Associates, offices have Weldwood Stay-Strate® Doors to match partitions. Partition distributor: Hartmann-Sanders, Inc., Chicago. Dealer: E. T. Ver Halen Co.

Weldwood®
MOVABLE PARTITIONS

A product of
UNITED STATES PLYWOOD CORPORATION
World's Largest Plywood Organization

United States Plywood Corporation **AR-4-55**
55 West 44th Street, New York 36, New York

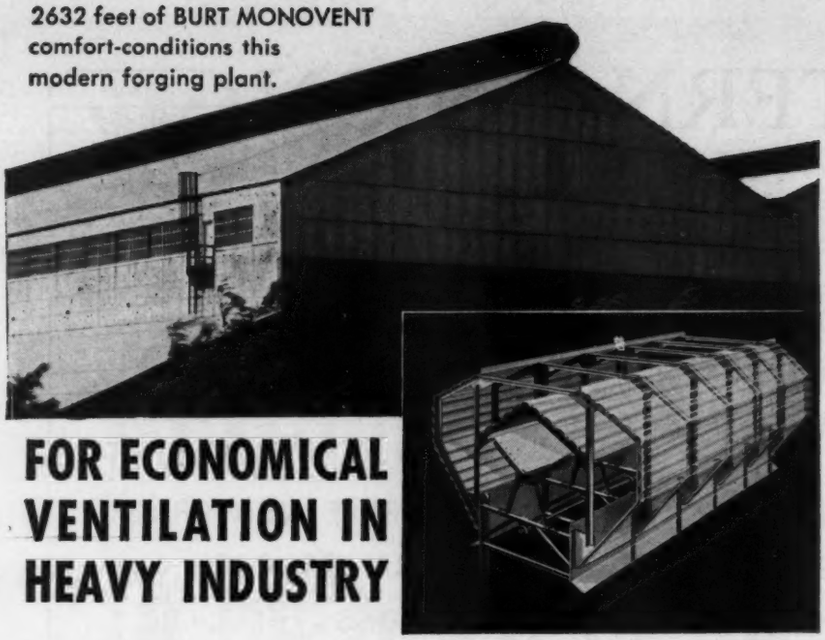
Please send me your latest data sheet on Weldwood Movable Partitions ☐ and Weldwood Stay-Strate® Doors ☐.

NAME.....

ADDRESS.....

CITY.....STATE.....

2632 feet of BURT MONOVENT comfort-conditions this modern forging plant.



FOR ECONOMICAL VENTILATION IN HEAVY INDUSTRY

BURT MONOVENT
Continuous Ridge Ventilator Is Your *BEST* Buy!

Where high heat or fumes require the removal of large volumes of air, Burt Monovent exhausts more air per dollar than any other ventilator. It provides uniform ventilation of the entire structure— in effect, converts the roof ridge to a quick-acting giant air valve. The Monovent is economical to install, operate and maintain and highly efficient.

- INSTALLS ON ANY TYPE ROOF
- SIZES FROM 4" TO 96"
- STURDY CONSTRUCTION FOR LONG LIFE
- MINIMUM MAINTENANCE

Send for FREE *Data Book!*

Write for Burt Data Book SPV-101-D. It supplies quick data on Burt's complete line of modern Roof Ventilators.

FAN & GRAVITY VENTILATORS • LOUVERS • SHEET METAL SPECIALTIES

The Burt Manufacturing Company

48 E. South St. Akron II, Ohio

MEMBER POWER FAN MANUFACTURERS ASSOCIATION

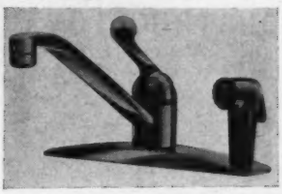
AE PRODUCTS

(*Continued from page 282*)

FRESH AIR INTAKE

The *Nesbitt Syncretizer*, 2⅛-in.-deep fresh air intake constructed of aluminum, consists of vertical "eliminator-type" louvers in a weathertight aluminum frame. A passage in each louver at the bottom permits free crossflow of water for draining. The wall box is equipped with a ½-in. mesh aluminum bird screen attached to the back, and is suitable for use in both prefabricated panel and masonry walls. *The Nesbitt Co., Philadelphia, Pa.*

MIXING FAUCET



A *one-control mixing faucet* for installation on standard 3-hole and 4-hole kitchen sinks operates on a ball and socket joint which controls the volume and temperature of water. The Delta faucet is also available with a spray attachment or a dishwashing attachment. *Delta Detroit Corp., Detroit, Mich.*

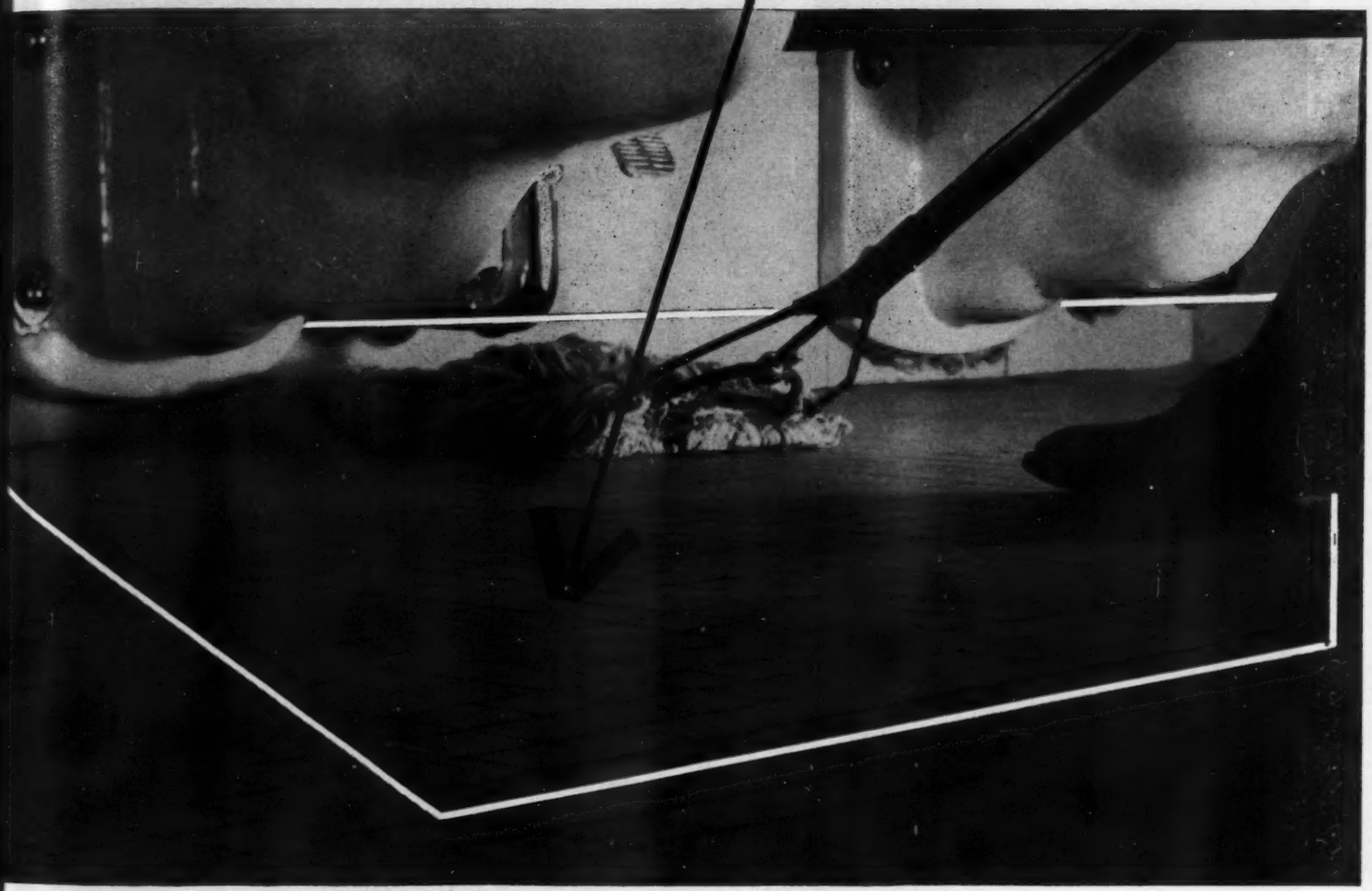
KITCHEN UNITS

Individual Crosley ovens and cooking units may be combined with storage cabinets and cutting surfaces at the convenience of the homeowner. Unit shown in photo above shows waist-high oven and surface cooking units placed on top of steel storage cabinets separated by a maple-top cabinet which can be used for cutting and preparing foods. *Crosley and Bendix Home Appliance Div., Avco Mfg. Corp., 1329 Arlington St., Cincinnati 25, Ohio.*

(*Continued on page 290*)

● MODERN NOTE IN REST ROOM PLANNING

Planned sanitation begins here . . .



• • • and this space is made possible by off-the-floor plumbing fixtures—the *only* modern approach in attaining and maintaining complete rest room *cleanliness* and *sanitation.*

By combining the ZURN SYSTEM of behind-the-wall carrier equipment with American-Standard off-the-floor fixtures, your rest room floors become fixture-free forever. Cleaning maintenance is simplified and complete around-the-clock sanitation is assured !

More and more, architects, contractors and building owners are specifying fixture-bare floors to safeguard public health. As a result, all major, up-to-date buildings are now being equipped with this modern system.

You, too, can realize the benefits of fixture-free floors by writing for the two booklets on modern washroom planning. "You can Build it and Maintain it for Less a New Way," and "The American-Standard Better Rest Room Guide." Send your request today. 111-1

Only AMERICAN-Standard off-the-floor plumbing fixtures installed with the ZURN system® give you these important benefits:—

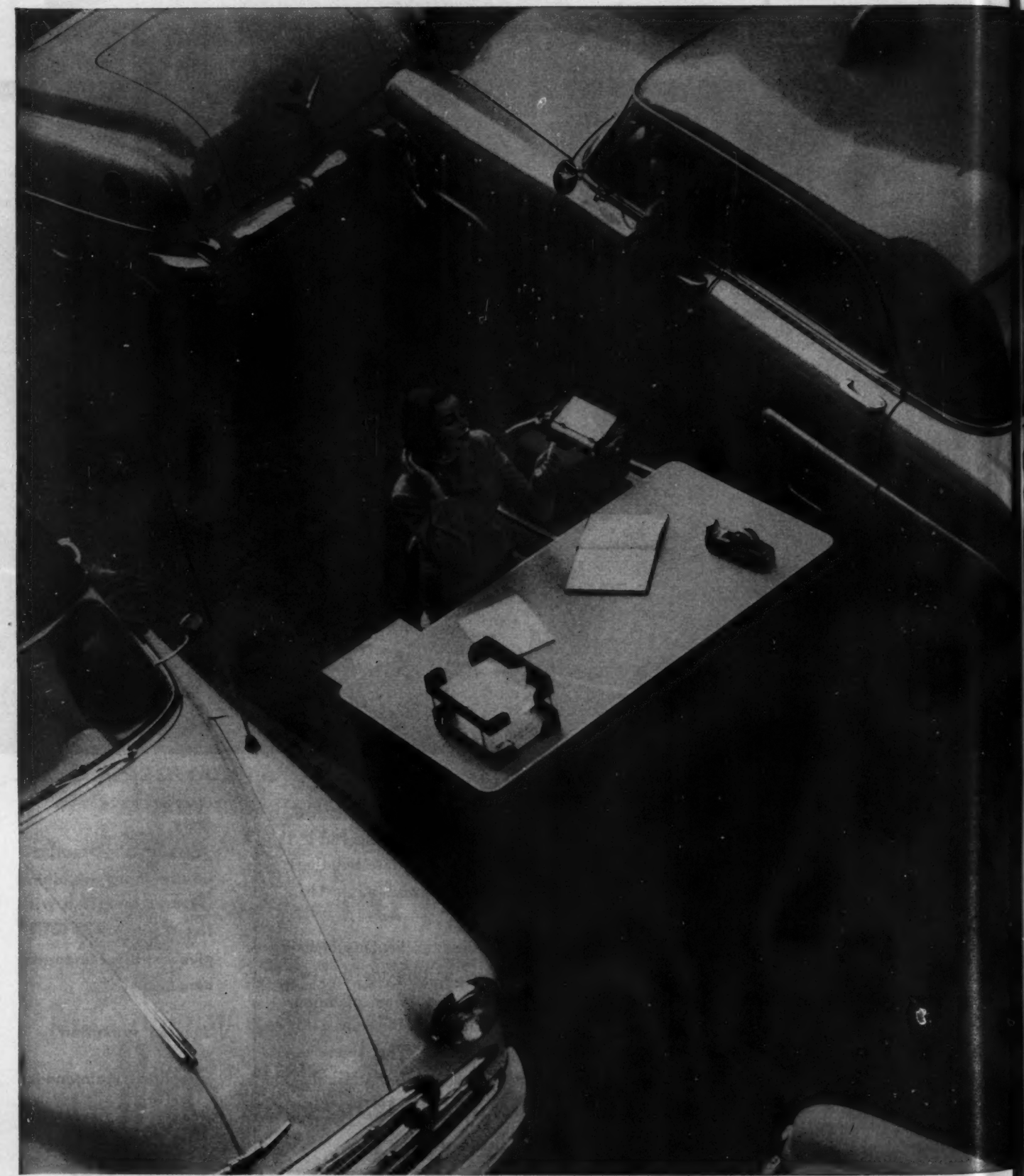
- √ insured sanitation
- √ simplified maintenance
- √ modern appearance

ZURN

J.A. ZURN MFG. CO.
PLUMBING DIVISION
ERIE, PA., U.S.A.

AMERICAN RADIATOR & STANDARD SANITARY CORPORATION
PITTSBURGH 22, PENNSYLVANIA

Keep your client's employees



s out of the traffic stream!

This illustration is not exaggerated when you think of working conditions in thousands of offices which do not use partitioning for privacy and efficiency.

To help you give your clients more productive, livable offices at the lowest cost, Virginia Metal Products does this:

1. VMP sells the advantages of properly designed working areas.

For example, VMP offers *ratio-delay studies* which accurately rate office efficiency. These reports are before-and-after studies of firms who have installed VMP MOBILWALLS to eliminate their traffic stream problems.

A recent study for a radio-tv representative who installed VIRGINIA METAL PRODUCTS MOBILWALLS shows that—

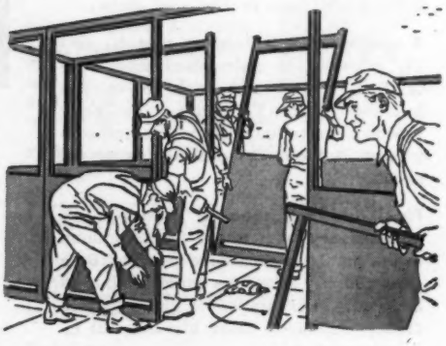
- **Office Productivity increased 30%**
- **Delays and Lost Motion were cut 58%**
- **Time devoted to Distractions and Correction of resulting Errors was cut 55%**
- **The VMP MOBILWALL installation added as much to the work output of the office as could have been added by a 30% increase in employees and payroll!**

These studies are available for your use.

2. VMP works with you to improve the quality and service on VMP MOBILWALLS.

VMP *is a can-do company*. Our sales representatives and factory engineers make your sales and design problems their problems. Their purpose is to give you more help, more experience, more skill in the handling of your specifications.

...and do it best with metal, movable VMP MOBILWALLS



3. VMP MOBILWALLS have modern styling for executive and clerical offices. They fit perfectly and are expertly finished. Colors are restful and permanent. Surfaces never chip, warp or crack—are washed clean with soap and water. Because they are metal, with many distinctive locking features, VMP MOBILWALLS can be moved at anytime to suit changes in floor plans.

4. INSTALLATION TAKES A FEW HOURS, with skilled erection crews part of VMP's service. Working out of nearby warehouses, VMP crews save your time and the client's money. You get exactly what VMP engineering originally promised to deliver... the best solution to designing more productive, livable offices... solved permanently with metal, movable VMP MOBILWALLS!

Interested? Write to Dept. AR-4 for complete, illustrated literature.

Virginia Metal Products, inc.

ORANGE, VIRGINIA

Subsidiary of Chesapeake Industries, Inc.

WHAT'S NEW in roof deck?

now...a new kind of roof deck that needs no field or maintenance painting

The new Ingersoll aluminum and porcelain enameled roof decks are designed to give a more attractive, more efficient industrial ceiling at substantially lower costs in time and money.

A system of full-floating panels, simply clips on to galvanized steel subpurlins which are welded to the building purlins. This means fast, easy erection and permits expansion and contraction without the usual pressure or strain.

Field and maintenance painting are unnecessary with either the aluminum or the porcelain enameled decking. Both give a highly attractive ceiling that lasts for years, contributes to lighting efficiency. Aluminum deck has thermal insulation value.

The highly corrosive-resistant porcelain enameled steel decking is double coated with chemically inert porcelain enamel. It is designed for use where moisture, acids, etc., damage ordinary decks. Also excellent in dairies and other places where its gleaming look is desirable.

Accessories accommodated without cutting load-bearing members. The photo above shows how sump pans, ventilator bases, and other accessories fit into place with no cutting of subpurlins or panels and without special cross bracing.

Exceptional strength of these decks is shown in Pittsburgh Testing Laboratory reports. They will be promptly submitted on request.

Investigate now!
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Ingersoll
ROOF DECK

REFLECTAL CORPORATION
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310 South Michigan Ave., Suite 2826
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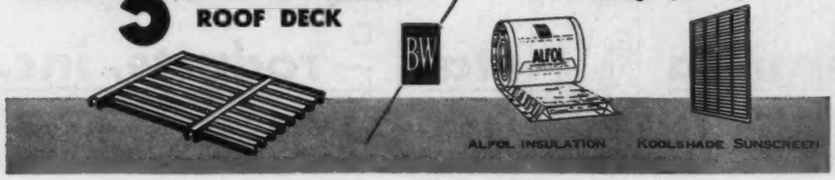


AIA PRODUCTS

(*Continued from page 286*)

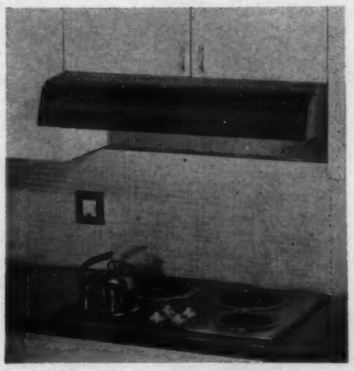
REFRIGERATOR-FREEZER

A *refrigerator-freezer combination* that is built into the kitchen wall and color-toned to the kitchen offers vapor-sealed wrap-around construction with *Laminar Fiberglas insulation*. The units have a combined storage space of 14.6 cu ft. *Revco, Inc., Deerfield, Mich.*

FRONT-OPENING DISHWASHER

A *front-opening dishwasher* is included in a new line of color-coördinated *Youngstown* kitchen equipment and accessories. The *Jet Tower*, measuring 30 in. wide and 24 in. from front to back, is designed for installation under the counter or as a free standing unit. The complete cycle includes washing, two rinsings and drying. *Mullins Mfg. Corp., Warren, Ohio.*

VENTILATING HOODS



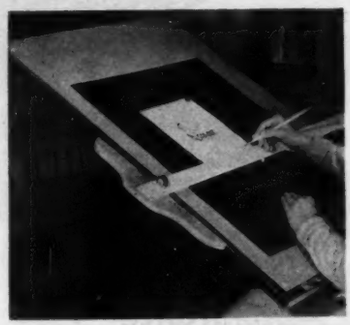
Kitchen ventilating hoods which adjust to fit almost any length cabinet incorporate a baffle plate for even distribution of the air discharge over the entire cooking area. Available in either copper or stainless steel brushed finish, the fans are made in two expansible sizes — 30 to 42 in. and 42 to 54 in. *Trade-Wind Motorfans, Inc., 7755 Paramount Blvd., Rivera, Calif.*

AIA PRODUCTS

STEEL SEALS

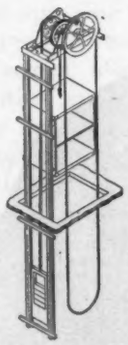
Zinc-coated steel door and window frame seals reportedly eliminate the need for wood casing around door and window frames. The seals are designed to anchor the wood frame to the wall and provide a locking groove for rock lath and perforated metal strip to create a bond for plaster. *Dor-Win Frame Seal Co., 710 W. Rockside Rd., Cleveland 9, Ohio.*

T-SQUARE



A *T-square* which is held to the left side of the drawing board by magnets which are inserted in the head of the T-square lessens the possibility of slipping. A small rubber wheel contacts the stainless steel edging and enables the artist to propel the instrument at will. *Red and White Corp., 308 W. Washington St., Chicago 6, Ill.*

MANUAL DUMB-WAITER



A *dumb-waiter* operated manually on ball bearings and chain suspension features a rust-resistant aluminum car. *ABC* dumb-waiters are furnished in two types, one for loads averaging up to 25 lb, with capacity loads up to 100 lb; the other for medium loads averaging 75 lb, with capacity loads up to 250 lb. *Sedgwick Machine Works, Inc., 142 W. 15th St., New York 11, N. Y.*

(*Continued on page 294*)

Temperature inside
windows shaded by KoolShade
80°

Temperature inside
windows shaded by best venetian blinds
93°

Another actual comparison proves

KoolShade Sunscreen's unmatched relief from sun heat and glare

Test: Because the Wilson, N. C. schools were faced with a difficult sun problem, Supt. S. G. Chappell made the following trial of KoolShade Sunscreen: with all the other rooms of Winstead Elementary School equipped with the best venetian blinds, Koolshade was installed on the windows of one southwest classroom.

Results were immediate. Teachers and pupils in adjacent classrooms were eager to "trade rooms" with those assigned to the KoolShaded space. Not only was the afternoon sun glare much less distracting, but temperatures were *comfortable* while other rooms sweltered.

Tests like this, in schools, hospitals, business and industrial buildings, and the finest homes, all over the country, lead again and again to specifying KoolShade. For shading that transforms sun-tortured rooms into excellent living and working areas—with the *plus* benefits of clear visibility, attractive appearance, and long trouble-free service—KoolShade is the only existing answer. Why not test it for yourself on your next project?

Only KoolShade Sunscreen offers

- **unsurpassed shading efficiency**—keeps up to 87% of the sun's rays off windows during the hottest part of the day—100 sq. feet of KoolShade reduces air conditioning load 1 ton.
- **80% clear visibility**—admits maximum glareless light.
- **harmony with all architecture**—improves building's appearance.
- **virtually no maintenance**—constructed of strong preoxidized bronze strips, wired and framed together, lasts for years, withstands hard blows.

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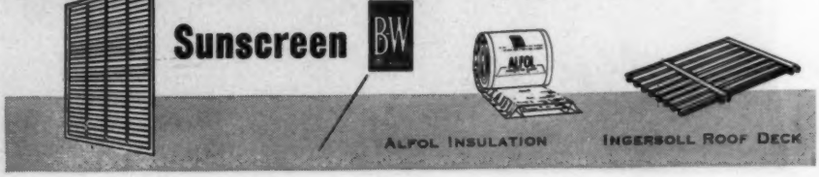

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Air space between outside and inside sash insulates against heat, makes air conditioning practical.

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☐ Chart of Standard Window Sizes
☐ Typical Installation Details
☐ Samples of Extrusions

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City.....

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AMERICA'S Finest WINDOW

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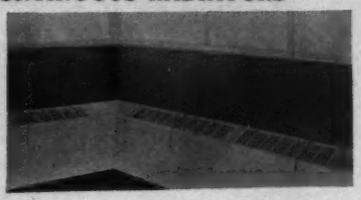
A|E PRODUCTS

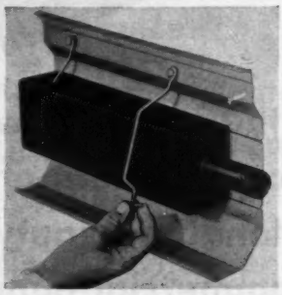
(*Continued from page 291*)

CONTINUOUS RADIATORS



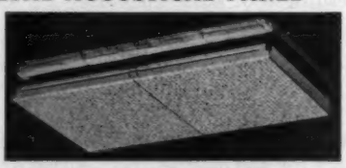
Continuous convector-radiators designed for applications where heating requirements demand installation under rows of windows and other layouts slope down on top so that the cabinet cannot be used as a seat or shelf. An integral grill in the top directs air upward and outward for circulation throughout the room. Adjacent cabinets have interlocking fronts which present a smooth appearance without the necessity for joining strips. *Fedders-Quigan Corp., Heating Div., Lalor and Hancock Sts., Trenton 7, N. J.*

BASEBOARD HANGER



A new support hanger for use with baseboard radiation installations hooks onto a double-headed nail which secures the back section of the baseboard to a ground strip on the studding. A speed nut positioned on the threaded end of the hanger supports the heating element. *C. A. Dunham Co., 400 West Madison St., Chicago 6, Ill.*.

METAL ACOUSTICAL PANEL



• *A predecorated metal acoustical unit* features an additional dark green paint pattern over the standard white finish to hide geometric acoustical perforations. Known as "Spatterfect," the unit uses sound-absorbing Gold Bond Acoustipads to give a noise reduction coefficient range of .80 to .90. *Acoustical Sales Div., Nat'l Gypsum Co., Buffalo, N. Y.*

(*Continued on page 298*)

True Air Conditioned Comfort with multi-vent

LOW VELOCITY AIR DIFFUSERS

SPECIFIED FOR FORD...coast to coast

Modular Multi-Vent panels will provide a quiet, concealed, draft-free air distribution system in the four new FORD buildings listed at the right.

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In addition Multi-Vent can handle as many as 60 air changes per hour and still maintain an even, draftless, low rate of room air motion!

These are only a few of the many reasons why Multi-Vent is the choice of the nation's leading office buildings, hospitals, laboratories, factories, hotels and restaurants.

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Mechanical Engineers: Jaros, Baum & Bolles, New York
Contractor: Bryant & Detwiler, Detroit
Mechanical Contractor: Thermotank, Inc., Detroit

LOUISVILLE, KENTUCKY
Ford Assembly Plant Office Building
Albert Kahn Associated Architects and Engineers

MAHWAH, NEW JERSEY
Ford Assembly Plant Office Building
Giffels & Vallet, Inc.
L. Rossetti Associated Engineers and Architects

SAN JOSE, CALIFORNIA
Ford Assembly Plant Office Building
Architects and Engineers: F. A. Fairbrother & Geo. H. Miehls, Detroit
Consultants: Albert Kahn Associated Architects and Engineers, Detroit

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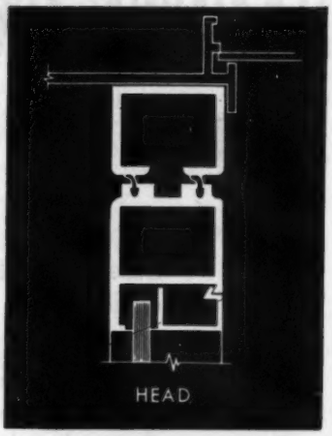
General Contractor:
MacDonald, Young and Nelson, San Francisco, Calif.
Architectural Metal:
The Kawneer Company, Berkeley, Calif., and Niles, Mich.
Windows:
Reynolds Metals Company, Louisville, Kentucky



Aluminum Applications In This Building:

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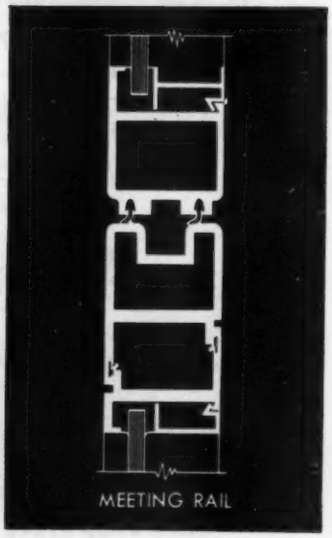
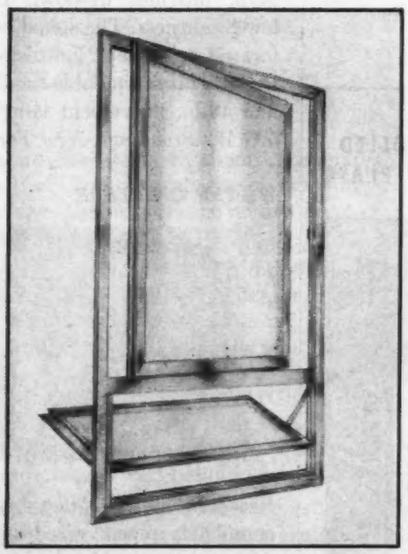
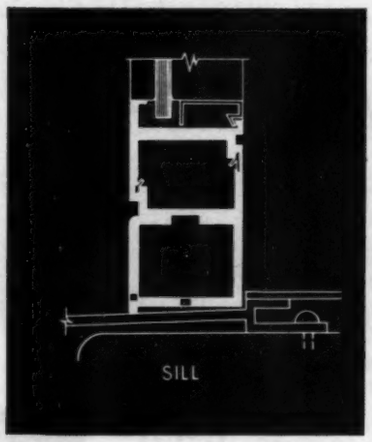




REYNOLDS 100H SERIES VERTICALLY PIVOTED WINDOW used in Pacific Mutual Building. Provides minimum air infiltration, positive locking. Revolves easily for washing from the inside. All welded frame construction. Self-draining.



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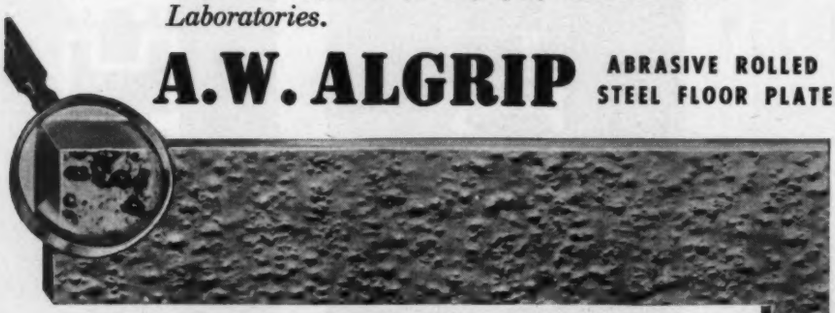

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Other products: A.W. SUPER-DIAMOND Rolled Steel Floor Plate—Plates—Sheets—Strip—(Alloy and Special Grade

AE PRODUCTS

(*Continued from page 294*)

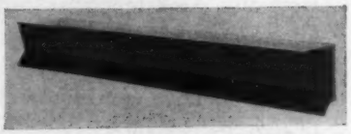
STEEL ROOF CONSTRUCTION

A *steel roof construction* of reinforced vermiculite insulating concrete on a ribbed steel deck, has a reported fire resistance of approximately 15 to 20 min. Since vermiculite concrete also acts as an insulator, no additional insulated materials are necessary. *Vermiculite Institute, 208 S. LaSalle St., Chicago 3, Ill.*

ROOF SHINGLE

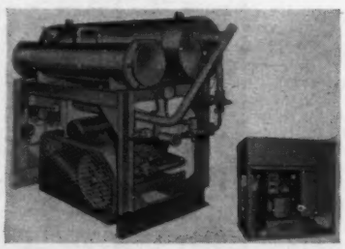
An *asbestos-cement roof shingle* that is reportedly fireproof and rot-proof is applied with a storm anchor as well as with nails to offer wind and storm resistance. The shingle is 12 by 24 in. wide with thatched edges and is available in white, green, black and red. *The Ruberoid Co., 500 Fifth Ave., New York 36, N. Y.*

SHIELDED FLUORESCENT LAMP



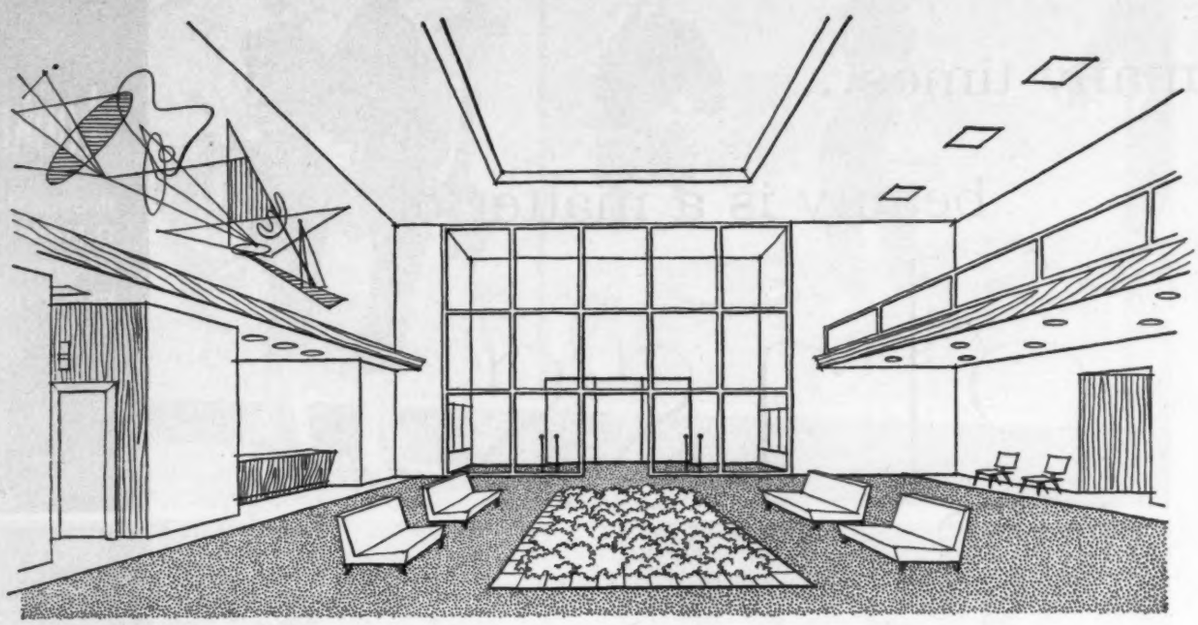
A shielded horizontal fluorescent lamp, designed to prevent direct view of the bulb, provides up-down lighting and low brightness. The shield, which is perforated to achieve lightness, is finished in flat white. Available for 18-in., 24-in., and 48-in. fluorescent lamps. *Stamford, 429 W. Broadway, New York 12, N. Y.*

WATER CHILLERS

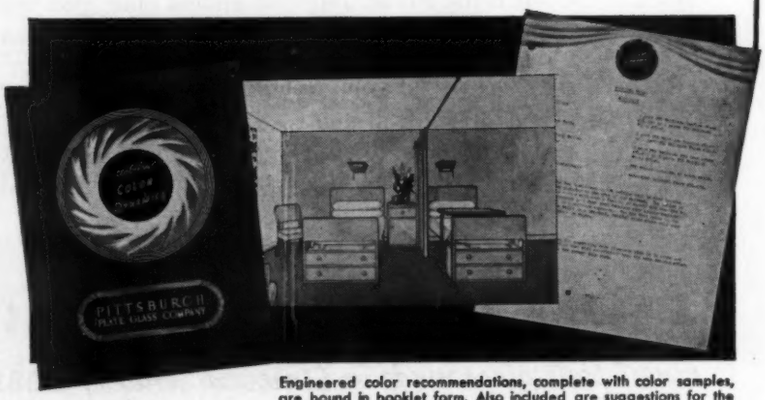


Packaged water chillers with circuits completely piped, wired and tested are designed to provide a cold water source for all air conditioning systems. Two separate chiller packages are available: a small chiller, for use in homes and small offices in 2- and 3-hp sizes; a large chiller, ranging from 7.5 to 75 hp, for medium and large buildings. *American Radiator & Standard Sanitary Corp., Pittsburgh 30, Pa.*

(*Continued on page 302*)



Why not add a comprehensive
Engineered Color Study to your plans?



Engineered color recommendations, complete with color samples, are bound in booklet form. Also included are suggestions for the correct types of coatings for every kind of material and construction.

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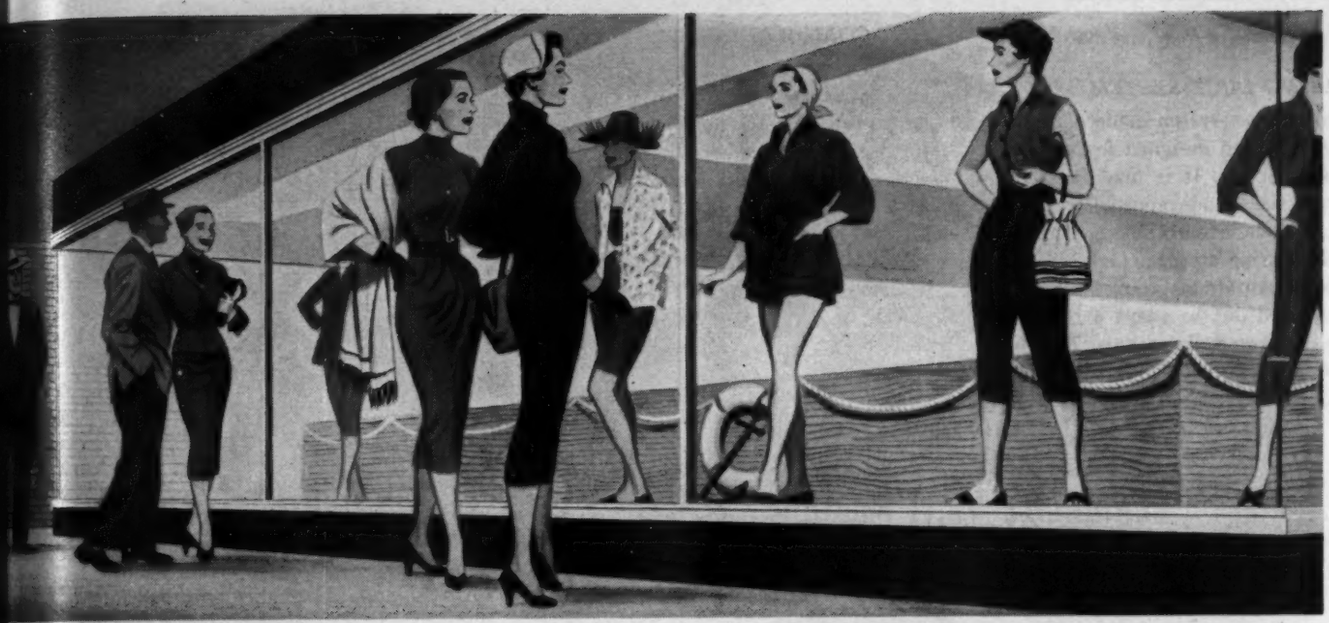
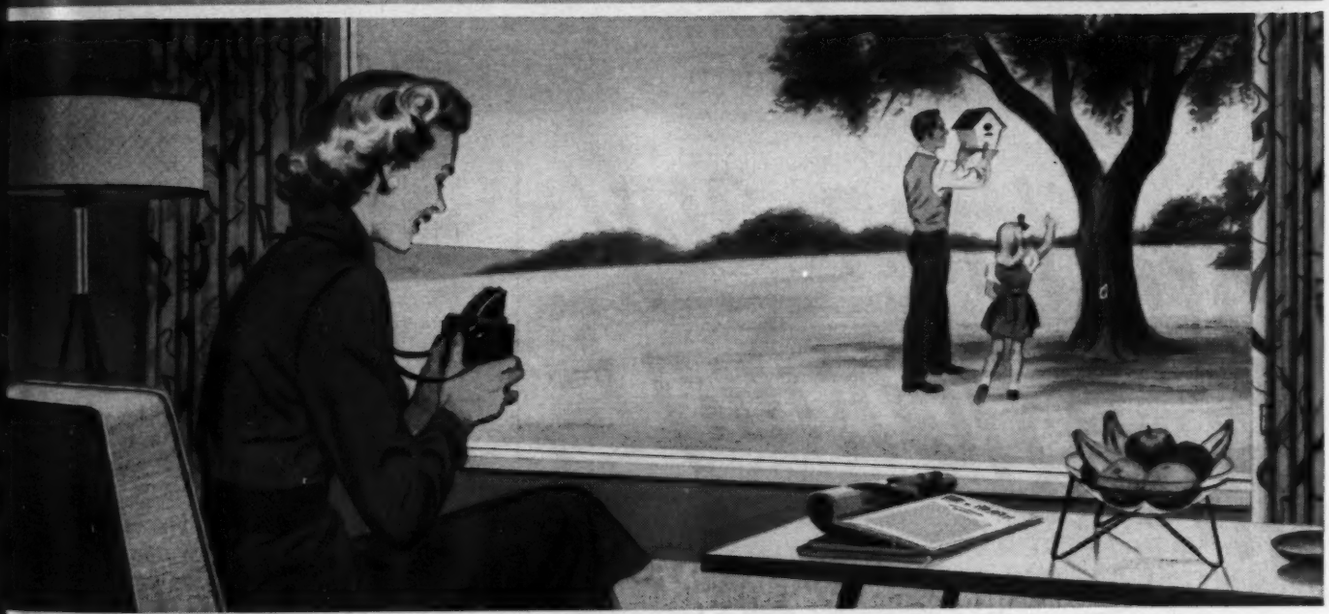
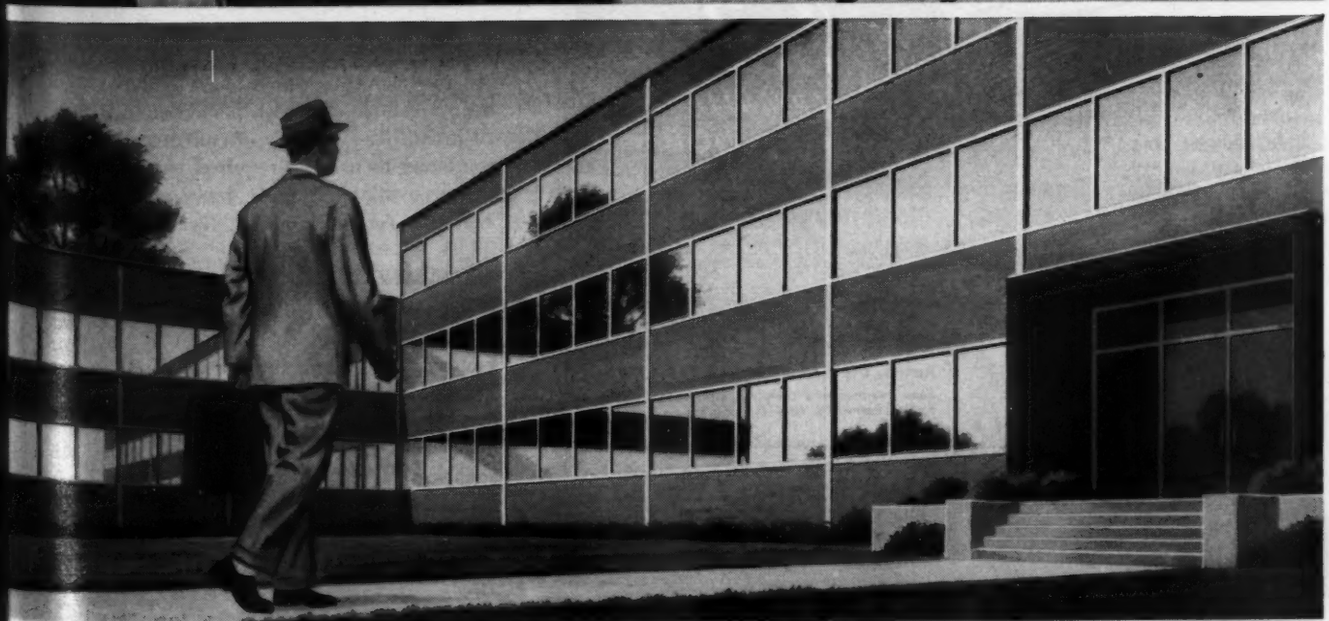
windows of Parallel-O-Plate Glass you see how much its truer reflections mean to exterior appearance.







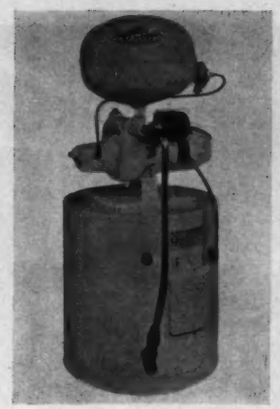
(*Continued from page 298*)

HEATING DUCT SYSTEM

A *heating duct system* made of fire clay ducts has been designed for underfloor heating service. It is manufactured in various sizes and reportedly will not rust, corrode, absorb moisture or disintegrate during storage. *Ceramiduct* has kerfed longitudinal grooves which can be knocked out to adapt a register of desired size and dimensions. *The Harry O. Donnelly Co., 33 Frank Blvd., Akron.*

HOT-COLD WATER TANK

An *electrical unit providing hot and cold running water* under pressure for small homes includes a complete automatic water system, pressure tank for cold water and a 12-gal. hot water heater with adjustable thermostat. The system is available in shallow well jet and convertible jet models and will pump water from depths up to 70 ft. The unit measures 42 in. high, 18 in. wide, 22 in. deep. *The Dayton Pump & Mfg. Co., 500 N. Webster St., Dayton, Ohio.*



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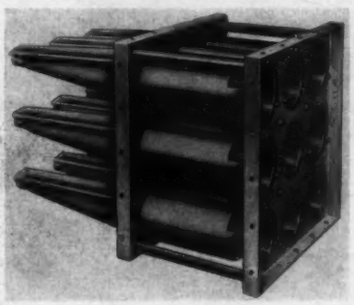
Please attach coupon to your business card or letterhead.

FIRE HOSE CASE

An *aluminum door and door trim* for wall cabinets for storing interior fire protection equipment is "satin finished" and coated with methacrylate lacquer for attractive appearance. *Allenco* aluminum-door cabinets are available in a wide range of standard sizes. *W. D. Allen Mfg. Co., 566 W. Lake St., Chicago 6, Ill.*

DUST COLLECTOR



• *AMERclone* dry granular dust collector is composed of a conical inlet which creates a swirling motion to dust, while permitting clean air to travel through a tube without changing direction. Nine tubes are combined in a standard modular cell, which has a nominal rating of 3000 cfm with a face area of 20 in. sq. Any number of cells may be combined to achieve required capacity within available space. *American Air Filter Co. Inc., Louisville 8, Ky.*

CYLINDRICAL LOCK

• The *450 Series National Lockset* is a cylindrical lock which is pre-set at the factory for standard interior doors (1⅜ in.) or standard exterior doors (1¾ in.) and installed after the latch bolt is applied to the door. Face plates and strikes are available with square or round corners with wrought brass, bronze or aluminum trim. Mechanism is of cold rolled steel. *National Lock Co., Rockford, Ill.*

(*Continued on page 306*)

these "commercials" bear repetition

These "commercials" are rugged Ro-Way overhead type doors. And they especially prove their inherent mettle on multiple installations.

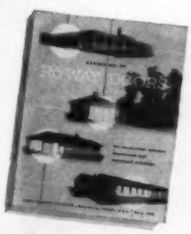
Many doors usually mean heavy traffic. Repeated daily wear and tear. But Ro-Way doors stand up. They're precision-made from selected west coast lumber and heavy-gauge, Parkerized steel hardware. Have mortise and tenon joints, water-proof glued *and* steel-pinned. That's why Ro-Ways give year after year of smooth, quiet, dependable service.

Design-wise, too . . . Ro-Ways bear repetition. Side by side they satisfy your creative urge with clean, uncluttered lines. Yet you can freely express your ideas within the practical limitations of even modest budgets.

Logical conclusion: You can repeat "Ro-Way" in your specifications . . . and satisfy *all* your clients *every* time.

ALSO—a complete line of Ro-Way overhead type doors for 1- and 2-car residential garages. All available with standard or individualized decorative panels. Write for free literature.

FREE ARCHITECT'S MANUAL. Complete details, specifications, drawings, etc., on Ro-Way's entire line. Especially helpful in selecting just the right door. Your letterhead request brings you Manual 55 promptly. No obligation, of course.



ROWE MANUFACTURING CO., 1256 Holton St., Galesburg, Illinois

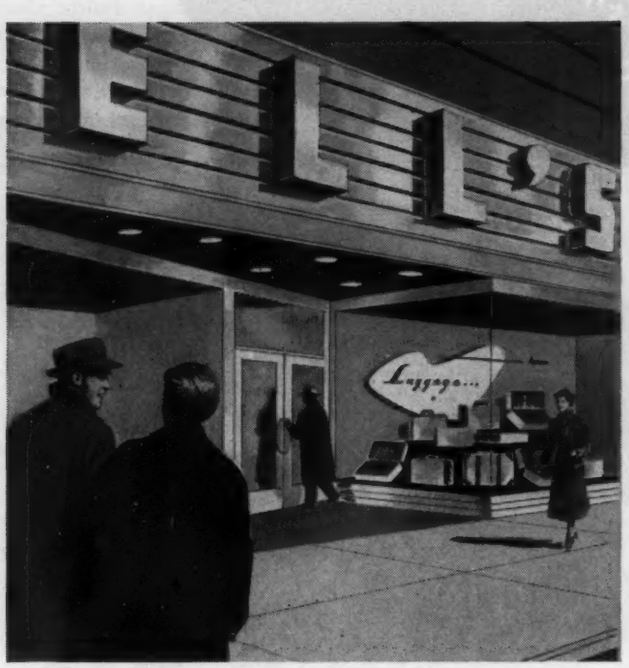
SEE OUR CATALOG IN SWEET'S

Nationwide sales and installation service. See your classified telephone directory for nearest Ro-Way distributor.

Rō-Way OVERHEAD TYPE DOORS

there's a Rō-Way for every Doorway!

For Beauty and Lasting Satisfaction . .



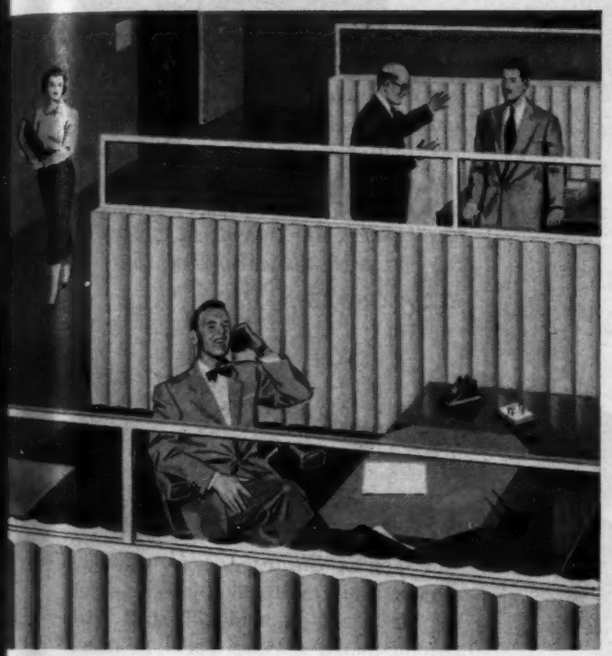
1. ALUMINUM STORE FRONTS and door frames made with Kaiser Aluminum give *lasting* beauty, and maintenance problems are practically eliminated. Aluminum is ideal for colorful porcelain enamel finishes.

2. ALUMINUM AWNINGS made with Kaiser Aluminum add beauty to any building and keep interiors cooler by reflecting hot sun rays. Strong enough to withstand rough weather without damage. Need little upkeep.

5. ALUMINUM AIR CONDITIONING and heating systems made with Kaiser Aluminum will not rust with moisture. Durable, easy to fabricate and install, economical. Aluminum's low emissivity assures minimum heat loss.

6. ALUMINUM HARDWARE made with Kaiser Aluminum adds an extra touch of beauty. It's strong, and durable, won't ever streak with rust. For *modernizing* as well as for new building, specify aluminum for greater value!

. . . BUILD WITH ALUMINUM!



3. ALUMINUM PARTITIONS made with Kaiser Aluminum give a smart, modern appearance. Lightweight, easy to handle—thus, partitions can be changed overnight to create new divisions of space.

4. ALUMINUM GRID CEILINGS made with Kaiser Aluminum boast lasting good looks, long life without maintenance. Their bright, modern appearance helps attract customers, brightens a store's reputation.

THE *beauty* of aluminum—which pleases and attracts customers—is reason enough to use it widely in your commercial buildings.

But more than that, aluminum offers a *combination* of advantages that no other material can match. Among these advantages are light weight, strength, corrosion resistance, long life, economy.

As a basic producer of aluminum, we do not make any of the products shown here. Instead, our efforts are put behind the job of serving manufacturers—to help improve their products and reduce costs.

Engineering assistance is available from our qualified aluminum engineers. Or for names of building products manufacturers who will gladly work with you, contact any Kaiser Aluminum office listed in your telephone directory. Kaiser Aluminum & Chemical Sales, Inc. *General Sales Office,* Palmolive Building, Chicago 11, Illinois; *Executive Office,* Kaiser Building, Oakland 12, California.

Kaiser Aluminum

setting the pace—in growth, quality and service

Kaiser Aluminum helps build demand for aluminum building products like these through consistent, colorful advertising in national magazines like Saturday Evening Post and Time.

(*Continued from page 302*)

ELECTRICAL SERVICE EQUIPMENT

Split-bus service equipment provides capacity for increase in residential power demands. The units, of the enclosed panel base assembly type, have 100- or 200-amp feeder capacity for single-phase, solid neutral service. Each is furnished with one service connection having a double-pole, 50-amp circuit breaker with wire connection to the lighting and appliance branch circuit

section. *Frank Adam Electric Co., P. O. Box 357, St. Louis 3, Mo.*

Clients expect your attention to the slightest detail in blueprints you provide. That's why more and more architects specify **BURSON CLIPS.**

They find, as you will, **BURSON CLIPS** speed up construction, lower installation costs, insure greater fire safety and assure lasting beauty.

The next time your plans call for acoustical tile or other types of gypsum lath suspended ceiling construction be sure *you specify* **BURSON CLIPS.**

BURSON CLIP SYSTEM • INCORPORATED

WRITE TODAY Send for further information and installation data on the economical, easy-to-use **BURSON CLIP SYSTEM.**

ARCHITECTURAL FILE

BURSON CLIP SYSTEM, INC.

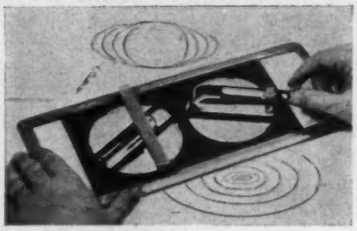
2441-47 SOUTH INDIANA AVENUE • CHICAGO 16, ILLINOIS

VICTORY 2-5115

STONE VENEER

Mano molded stone veneer, simulating narrow ribbon stone, is available in four shades of buff or gray colors which reportedly resist age, fire, acid washing and sandblasting. It is adaptable to both indoor and outdoor fireplaces. *Castle Stone, Inc., Dept. MA, 10th & Spring Garden Sts., Allentown, Pa.*

ELLIPSOGRAPH



The *Fowler Ellipsograph* for drawing circular and cylindrical objects in either ink or pencil is made of steel with chrome-plated working parts. It measures 5¾ in. by 13½ in. and comes with pencil stylus and charts. *Fowler Engineering, 1109 Maple St., Whittier 2, Calif.*

FLOORING

• A *rubber floor tile* with a tweed-textured surface may be applied directly to concrete, wood and steel floors without felt or paper between the tile and floor. It is obtainable in three sizes — 9 by 9 in., 9 by 18 in. and 27 by 27 in., in white, red or green on black. *American Mat Corp., 1797 Adams St., Toledo, Ohio.*

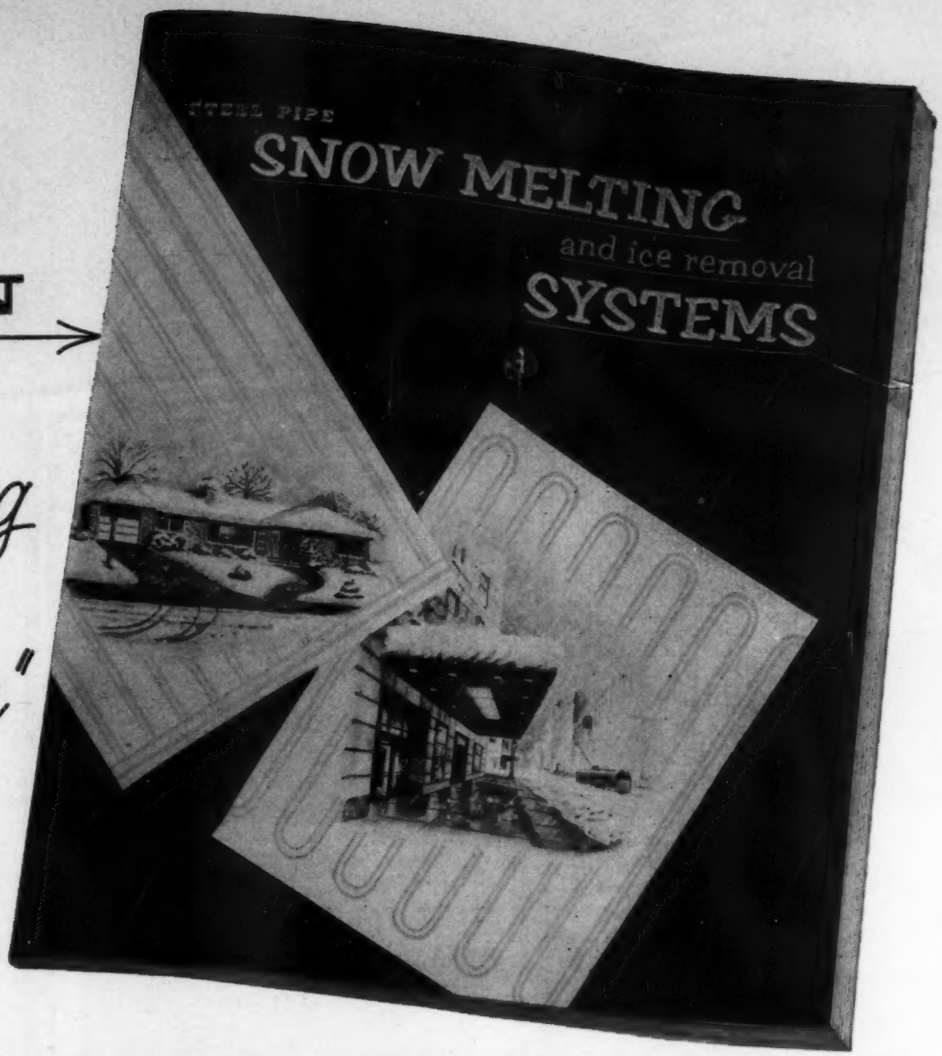
• *Cork plank flooring* with end pegs is available in 3/16 gauge with straight edges and in random widths of 4, 6 and 8 in. all in 36-in. length. Installation of cork plank flooring is same as for other cork flooring. *Dodge Cork Co., Inc., Lancaster, Pa.*

CORRECTIONS FROM FEBRUARY

The photograph shown with the description of the "Bilco spring-balanced roof scuttle" on page 244 is actually the "Swartwout Airmover gravity roof ventilator" described on page 249, and vice versa.

The "space-saving three-compartment pressure cooker" described on page 282 is manufactured by Market Forge Co., Everett, Mass., not Cory Snow Inc.

You **CAN** *"do something about the weather"*



CONTROL IT WITH STEEL PIPE SNOW MELTING

When Mark Twain said, "Everybody talks about the weather but nobody ever does anything about it," he was reckoning without the ingenuity of modern science. Today we "seed" the clouds to produce rain, dissipate fog chemically and mechanically, produce sunshine electronically, and *melt snow as soon as it touches ground.*

The use of modern snow melting and ice-removal systems is a sound investment in areas where snow and ice are a detriment to the free, safe, sure movement of people and vehicles. Progressive businesses now make their own weather as far as controlling the all-winter accessibility of their properties is concerned. Sidewalks, driveways, ramps, shipping docks, parking areas, garage and service aprons, airplane hangars, crosswalks, even bridge floors and private spurs and tracks, can and are being made "weather-proof."

For these snow and ice removal systems *steel pipe* is the overwhelming choice for commercial, industrial and domestic installations. Why? Because steel pipe has not only been proved in more than 60 years of hot water and steam heating applications, but has also the advantages of economy and adaptability for the panels, coils and runs of modern snow melting systems. Yes, steel pipe is first choice . . . the most widely used pipe in the world for heating, plumbing, snow melting, fire sprinkler systems, and the transmission of power, steam and air.

Send for a free copy of the 32-page color booklet "Steel Pipe Snow Melting and Ice Removal Systems."

Steel Pipe is First Choice

Committee on
STEEL PIPE RESEARCH
AMERICAN IRON AND STEEL INSTITUTE
350 FIFTH AVENUE, NEW YORK 1, N. Y.

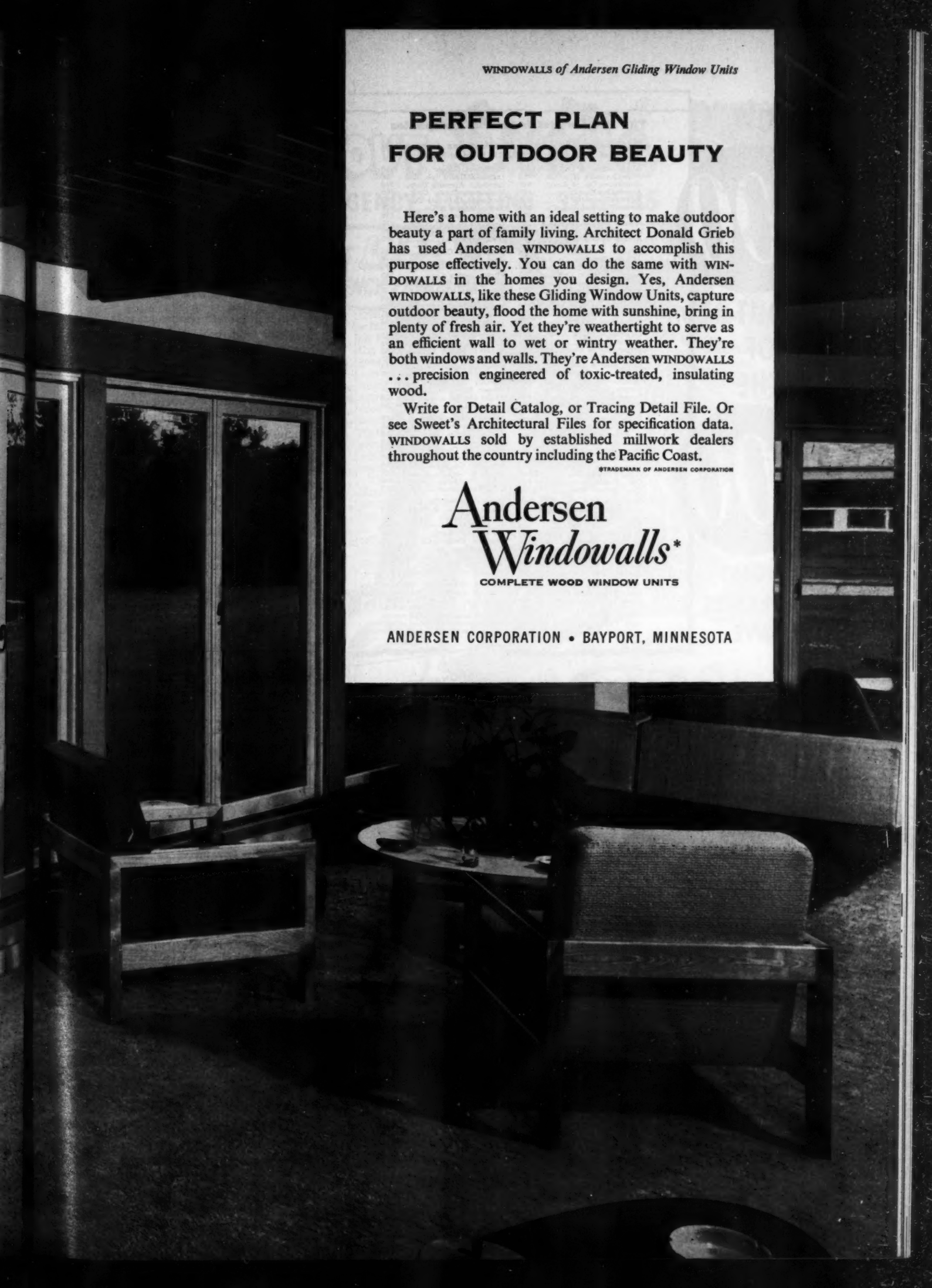
Committee on Steel Pipe Research
American Iron and Steel Institute
350 Fifth Ave., New York 1, N.Y.

Please send me without cost or obligation a copy of the 32-page booklet "Steel Pipe Snow Melting and Ice Removal Systems."

Name_____

Address_____

City_____ Zone_____ State_____



WINDOWALLS *of Andersen Gliding Window Units*

PERFECT PLAN FOR OUTDOOR BEAUTY

Here's a home with an ideal setting to make outdoor beauty a part of family living. Architect Donald Grieb has used Andersen WINDOWALLS to accomplish this purpose effectively. You can do the same with WINDOWALLS in the homes you design. Yes, Andersen WINDOWALLS, like these Gliding Window Units, capture outdoor beauty, flood the home with sunshine, bring in plenty of fresh air. Yet they're weathertight to serve as an efficient wall to wet or wintry weather. They're both windows and walls. They're Andersen WINDOWALLS . . . precision engineered of toxic-treated, insulating wood.

Write for Detail Catalog, or Tracing Detail File. Or see Sweet's Architectural Files for specification data. WINDOWALLS sold by established millwork dealers throughout the country including the Pacific Coast.

*TRADEMARK OF ANDERSEN CORPORATION

Andersen *Windowalls**

COMPLETE WOOD WINDOW UNITS

ANDERSEN CORPORATION • BAYPORT, MINNESOTA

NOW 100 OUT OF THE 100 LARGEST COMPANIES HAVE

The 100 Largest Industrial Companies

Total Assets, 100 Largest Manufacturing Corporations, as Reported at End of 1953 (In Millions)

Allied Chem. & Dye Cp.	$705	Kennecott Copper Corp.	$748
Allis-Chalmers Mfg. Co.	402	Liggett & Myers Tob. Co.	497
Aluminum Co. of Amer.	906	Lockheed Aircraft Corp.	260
Amer. Can Co.	432	Mathieson Chem. Cp.‡	260
Amer. Cyanamid Co.	443	Monsanto Chemical Co.	362
Amer. Smelt. & Ref. Co.	564	Philip Morris & Co.	256
Amer. Tobacco Co.	801	Nash-Kelvinator Corp.*	233
Amer. Viscose Corp.	265	Natl. Dairy Prod. Corp.	426
Anaconda Cop. Min. Co.	536	Natl. Distillers Prod. Cp.	422
Armco Steel Corp.	465	Natl. Lead Co.	295
Armour & Co.	474	Natl. Steel Corp.	528
Atlantic Refining Co.	571	Ohio Oil Co.	318
Avco Mfg. Corp.	223	Owens-Illinois Glass Co.	222
Bendix Aviation Corp.	329	Phelps Dodge Corp.	345
Bethlehem Steel Corp.	1,783	Phillips Petroleum Co.	1,039
Boeing Airplane Co.	232	Pitts. Plate Glass Co.	443
Borden Co.	296	Procter & Gamble Co.	444
Borg-Warner Corp.	260	Pullman Inc.	229
Burlington Mills Corp.	301	Pure Oil Co.	383
Caterpillar Tractor Co.	261	Radio Corp. of Amer.	494
Celanese Corp. of Amer.	322	Republic Steel Corp.	741
Chrysler Corp.	898	R. J. Reynolds Tob. Co.	599
Cities Service Co.	1,103	Reynolds Metals Co.	482
Coca-Cola Co.	236	Richfield Oil Corp.	362
Colo. Fuel & Iron Corp.	215	Schenley Industries	414
Continental Can Co.	321	Shell Oil Co.	985
Continental Oil Co.	409	Sinclair Oil Corp.	1,141
Crown Zellerbach Corp.	243	Singer Mfg. Co.	405
Deere & Co.	431	Skelly Oil Co.	275
Distillers Cp.—Seagrams	458	Socony-Vacuum Oil Co.	2,154
Douglas Aircraft Co.	274	Sperry Corporation	259
Dow Chemical Co.	769	Stand. Oil Co. of Calif.	1,535
E. I. duPont de N. & Co.	1,846	Stand. Oil Co. (Ind.)	2,036
Eastman Kodak Co.	524	Stand. Oil Co. (N. J.)	5,372
Firestone Tire&Rub. Co.	567	Stand. Oil Co. (Ohio)	296
Food Mach. & Chem. Cp.	223	J. P. Stevens & Co.	257
Gen. Amer. Trans. Cp.	226	Sun Oil Co.	469
Gen. Electric Co.	1,697	Swift & Co.	533
Gen. Foods Corp.	353	Texas Company	1,805
Gen. Motors Corp.	4,405	Tide Water Assoc. Oil Co.	362
B. F. Goodrich Co.	437	Union Carbide & Car. Cp.	1,191
Goodyear Tire&Rub. Co.	666	Union Oil Co. of Calif.	476
Gulf Oil Corp.	1,766	United Aircraft Corp.	293
Inland Steel Co.	433	U. S. Rubber Co.	489
Inter. Bus. Mach. Corp.	520	U. S. Steel Corp.	3,348
Inter. Harvester Co.	978	Western Electric Co.	877
Inter. Paper Co.	507	Westinghouse Elec. Cp.	1,265
Jones & Laughlin Stl. Cp.	579	Weyerhaeuser Timber Co.	323
Kaiser Alum. & Chem. Cp.	320	Wheeling Steel Corp.	234
Kaiser Steel Corp.	267	Youngstown Sh. & Tube Co.	514

Total assets are shown after deducting reserves for depreciation. Table does not include Ford Motor Company, with total assets of $1,758 million on Dec. 31, 1953, or United Fruit Company, with total assets of $336 million on Dec. 31, 1953, which companies do not publish detailed income accounts. ‡ To merge with Olin Industries, Inc., as Olin Mathieson Chemical Corp. * Merged with Hudson Motor Car Co. as American Motors Corp.

NATIONAL CITY BANK MONTHLY LETTER OF JULY, 1954

BRADLEY Washfountains

Because they provide these Important Group-Washing Features:

- The Maximum in Sanitation
- Lower Installation Costs
- More Facilities in Less Space

In the list previous to the one shown above, Bradley Washfountains were used by 99 out of the 100. Now in this latest list, we find the vote is unanimous,—100 out of 100.

While the preference for these sanitary wash fixtures by the biggest "100" is significant,—thousands of plants all over the land,—large and small,—have also standardized on them during the past 30 years.

Groups up to 10 are served clean running water from the central sprayhead at each Bradley. There are no faucets to touch or maintain; the large sleek bowl is self-flushing to prevent collection of contaminating used water,—and with foot-control, water supply is cut off automatically to prevent water waste. Your employees, too, will appreciate the clean quick washing that Bradley Washfountains provide.

Write for Complete Information

BRADLEY WASHFOUNTAIN CO.
2227 W. Michigan Street
Milwaukee 1, Wisconsin

Distributed Through Plumbing Wholesalers

A/E LITERATURE

(*Continued from page 232*)

EXPANSION BOLT CHART

The USE selector chart classifies each anchoring device according to load type, masonry classification, safe working load and metal table. *U. S. Expansion Bolt Co., York, Pa.*

LIGHTING

• Application and performance data for reflector and projector lamps is described in leaflet CE-954.

• Fluorescent luminaires for commercial and industrial use are discussed in a 28-page booklet which includes maintenance and mounting data, details of construction, dimensions and recommendations for application. *Westinghouse Electric Corp., P.O. Box 2099, Pittsburgh 30, Pa.**

• Automatic emergency lighting equipment, including explosion-proof equipment for hazardous areas, is described in a 16-page catalogue. *Electric Cord Co., 195 William St., New York 38, N. Y.*

• *Catalog 55* contains information and specifications on fluorescent, slimline, and incandescent lighting fixtures manufactured by the *Kayline Co., 2480 East 22nd St., Cleveland 15, Ohio.*

• A package consisting of nine bulletins outlining the application and features of G-E lighting panelboards includes complete ratings, dimensions and specifications. Publications can be obtained singly or as a package from *Advertising and Sales Promotion, General Electric Co., Plainville, Conn.**

• Stage lighting switchboards are described in a 24-page booklet (GEA-6168) also available from G-E.

• *Acousti-Luminous Ceilings* are described and illustrated in a 16-page brochure which includes a diagram of installation instructions. *Luminous Ceilings Inc., 2500 W. North Ave., Chicago.*

FIRE PROTECTION STANDARDS

An aircraft hangar standards guide offering construction and fire protection recommendations has been compiled by the National Fire Protection Association. *Engineering Dept., Nat'l Board of Fire Underwriters, 85 John St., New York 38, N. Y.*

(*Continued on page 314*)

FACTS ABOUT Exide®

EMERGENCY LIGHTING SYSTEMS

WHEN LIGHT MEANS LIFE
DEPEND ON EXIDE EMERGENCY LIGHTING!
bloody abbatoir.
Surgeon Works
As Power Fails
An emergency operation was completed successfully at [redacted] Hospital yesterday despite a 40-minute electric power failure that knocked out all lights, heat, elevators and dumb-waiters.
The power transfer to a battery-powered emergency system in the institution was made so smoothly that some attendants in the operating room were not aware of the disruption. A break on a main line on [redacted] blvd. was responsible for the power failure from 8:50 to 9:30 A. M.

LIGHTS OUT 15 MINUTES... THOUSANDS OF DOLLARS WORTH OF MERCHANDISE STOLEN!

THAT'S WHAT IT COST A DEPARTMENT STORE NOT TO HAVE EXIDE EMERGENCY LIGHTING PROTECTION.

WHEN LIGHTS GO OUT... EXIDE-LIGHTGUARDS® GO ON!

WHENEVER STORMS, FLOODS, ACCIDENTS OR FIRES CAUSE UNEXPECTED POWER FAILURES, COMPACT, PORTABLE EMERGENCY LIGHTING UNITS FURNISH LIGHT INSTANTLY AND AUTOMATICALLY! THEY PREVENT PANIC, INJURIES, PROPERTY DAMAGE, LOOTING!

LONG-LIFE EXIDE BATTERIES

HAVE BEEN USED FOR YEARS TO SUPPLY LOW-COST POWER FOR ALL TYPES OF EMERGENCY LIGHTING SYSTEMS, FOR 6-VOLT, 32-VOLT AND 115-VOLT INSTALLATIONS. FOR HELP IN DETERMINING WHAT TYPE OF SYSTEMS TO INSTALL, SPECIFICATIONS:

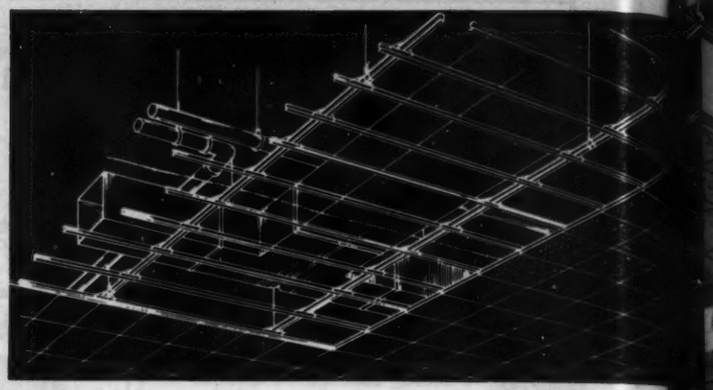
1. CALL AN EXIDE SALES ENGINEER FOR FULL DETAILS.
2. WRITE FOR FORM 4808 DESCRIBING LIGHTGUARDS, AND FORM 4721 ON PERMANENT INSTALLATIONS.

Exide INDUSTRIAL DIVISION, The Electric Storage Battery Company, Philadelphia 2, Pa.

problem: Lower ceiling to conceal air conditioning ducts

solution: ACOUSTONE* mineral acoustical tile installed with the concealed Z-Spline System

Mechanical suspension of the ACOUSTONE tiles is accomplished by engaging kerfs of tile with lower flange of Z-Splines, attached to carrying channels, bar joists, or wood furring or framing members. This provides a new, lower ceiling level with space above for air conditioning ducts.

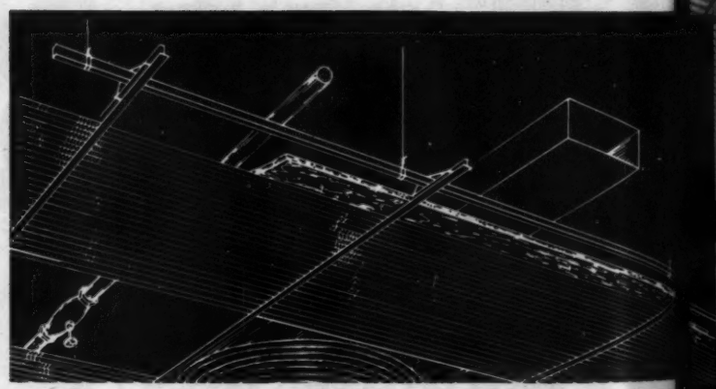


How you can solve your c

problem: Conceal above-ceiling services, but provide easy accessibility for maintenance

solution: CORRUTONE installed with the E-Z-S System

The E-Z-S System for mechanical suspension of CORRUTONE or ACOUSTONE is installed by simply attaching exposed painted Z-Splines to 1½" carrying channels, bar joists or wood furring or framing members. CORRUTONE panel, which holds a sound-absorbent mineral wool pad, is then placed on lower flange of the spline. Panels lift out readily for easy access to services above.



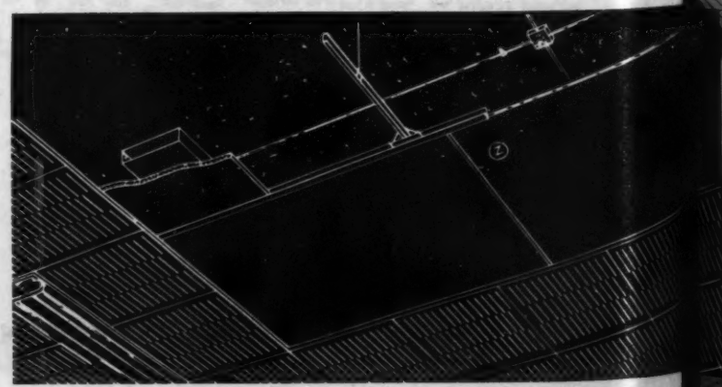
Sound control is a job for experts!

For complete drafting room details and assistance in planning, contact your nearby ACOUSTONE contractor. Also see Sweet's file 10a/Uni or write United States Gypsum, 300 West Adams Street, Dept. AR-1, Chicago 6, Illinois.

problem: Provide an economical school ceiling that's sound-resistant and fire-safe

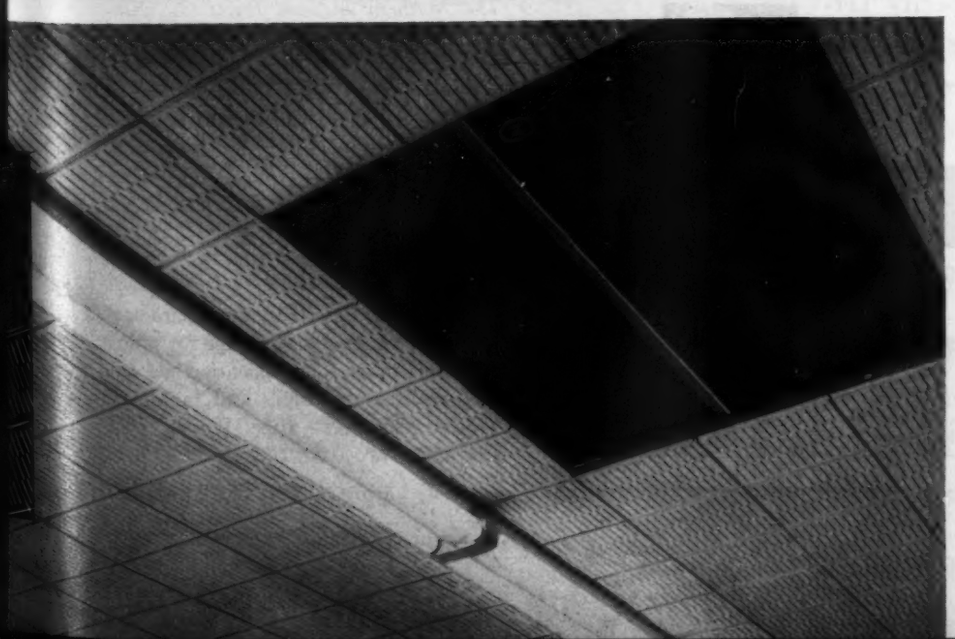
solution: Slotted AUDITONE* adhered to Z-Board, suspended from bar joists

Mechanical suspension of fire-resistant gypsum Z-Board on Z-Splines is an economical method of providing a base for adhesive installation of Slotted AUDITONE fiber acoustical tile, available with flame-resistant coating. The ½" x 2' x 8' Z-Board is placed on top of the lower flange of the Z-Spline, providing a smooth, level surface.



*T. M. Reg. U. S. Pat. Off.

r ceiling problems quietly!



UNITED STATES GYPSUM

The greatest name in building

UNITED STATES GYPSUM

Hallmark of long-lived hallways:

Terrazzo

All-time favorite for long-time service, Terrazzo meets the most rigorous school curricula, passes all tests with faithful colors. It repays architects' and builders' foresight with long life and low upkeep. Useful for floor, baseboard, wainscot, or stairway, Terrazzo's smooth, unbroken surface cleans easily and minimizes repairs. Specify Terrazzo—and forget! See our catalog in Sweet's. Use coupon for free AIA Kit.

SEE OUR CATALOG IN SWEET'S

THE NATIONAL TERRAZZO AND MOSAIC ASSOCIATION, INC.

404 Sheraton Building 711 14th St., N.W. Washington 5, D. C.

Send free AIA Terrazzo Kit to

Name.....

Firm.....

Street Address.....

City ..... Zone..... State.....

AE LITERATURE

(Continued from page 310)

TILE ADHESIVES

A handbook on acoustical tile adhesives includes installation information and specifications. 15 pages. *A. Z. Bogert Co., Ambler, Pa.*

BLOWER CATALOG

Utility blowers with backward curved blades are described in a 46-page bulletin which includes complete dimensions, specifications and performance data. *Hartzell Propeller Fan Co., Piqua, Ohio.*

DOORS

• A 2-page detail sheet lists properties and specifications of *Capri* sliding glass doors. *T. V. Walker & Son, Inc., 217 N. Lake St., P.O. Box 547, Burbank, Calif.*

• Balanced doors are described in detail in an 8-page, illustrated catalog from the *Ellison Bronze Co., Inc., Jamestown, N. Y.**

• Specification details, illustrations and charts describe steel rolling doors in catalog No. 401-4. *The Cookson Co., 1525 Cortland Ave., San Francisco, Calif.**

DISPLAY LETTERING

Available styles, colors and sizes of metal letters for interior and exterior display are listed in a 16-page illustrated catalogue. *Nelson Metalcraft Co., 3036 W. Chicago Ave., Chicago 22, Ill.*

DRAINAGE SYSTEMS

Advantages, procedures and costs of installing copper drainage systems are discussed in a 20-page manual which provides illustrations, charts and tables. *The Northern Indiana Brass Co., Elkhart, Ind.*

WALL, CEILING PANELS

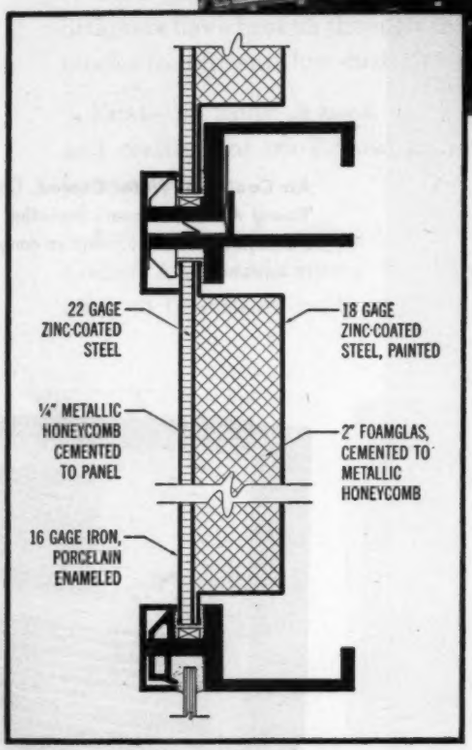
Plastic-finished wall and ceiling panels and a line of mouldings and adhesives are described in an 8-page illustrated catalog. *Marsh Wall Products, Inc., Dover, Ohio.**

FOUNDATION PIPES

Bulletin 542 describes the characteristics of forge foundation pipe for piling and illustrates its application in the construction of bridges and buildings. *Taylor Forge and Pipe Works, P.O. Box 485, Chicago 90, Ill.*

(Continued on page 318)

ARCHITECT:
Skidmore, Owings & Merrill
New York


22 GAGE ZINC-COATED STEEL
18 GAGE ZINC-COATED STEEL, PAINTED
¼" METALLIC HONEYCOMB CEMENTED TO PANEL
2" FOAMGLAS, CEMENTED TO METALLIC HONEYCOMB
16 GAGE IRON, PORCELAIN ENAMELED

Cross-section of curtain wall panel

New office building with Porcelain Enameled Curtain Walls

Ford Motor Company's new Central Staff building now under construction in Dearborn, Michigan, will have 90,000 square feet of porcelain enamel-faced curtain wall. This is one of the largest applications of porcelain enamel ever made on a single office building.

Here again, curtain walls of these thin panels, 2½ inches thick, gain thousands of square feet of floor space for the company. The building exterior can be kept clean at a minimum of expense, and the dark blue-green porcelain enamel will keep its refreshing beauty indefinitely.

Armco Enameling Iron, the "World's Standard," serves as the base for the porcelain enameled panel facing.

For more information, just fill out the coupon and mail it to us.

Other prominent buildings having curtain walls faced with porcelain enamel on Armco Enameling Iron include:

- General Motors Technical Center
- Hartford Statler Hotel
- Mile High Center, Denver
- RCA Building, Cherry Hill, N. J.
- Statler Hilton Hotel, Dallas
- Standard Federal Savings Building, Los Angeles
- 1200 Beacon Street Motel, Boston
- Many school, hospital and college buildings

ARMCO STEEL CORPORATION
1055 Curtis Street
Middletown, Ohio

Mail me a list of producers of porcelain enameled curtain wall panels.

Name:_____

Firm:_____

Address:_____

City:_____ Zone:____ State:_____

ARMCO STEEL CORPORATION MIDDLETOWN, OHIO

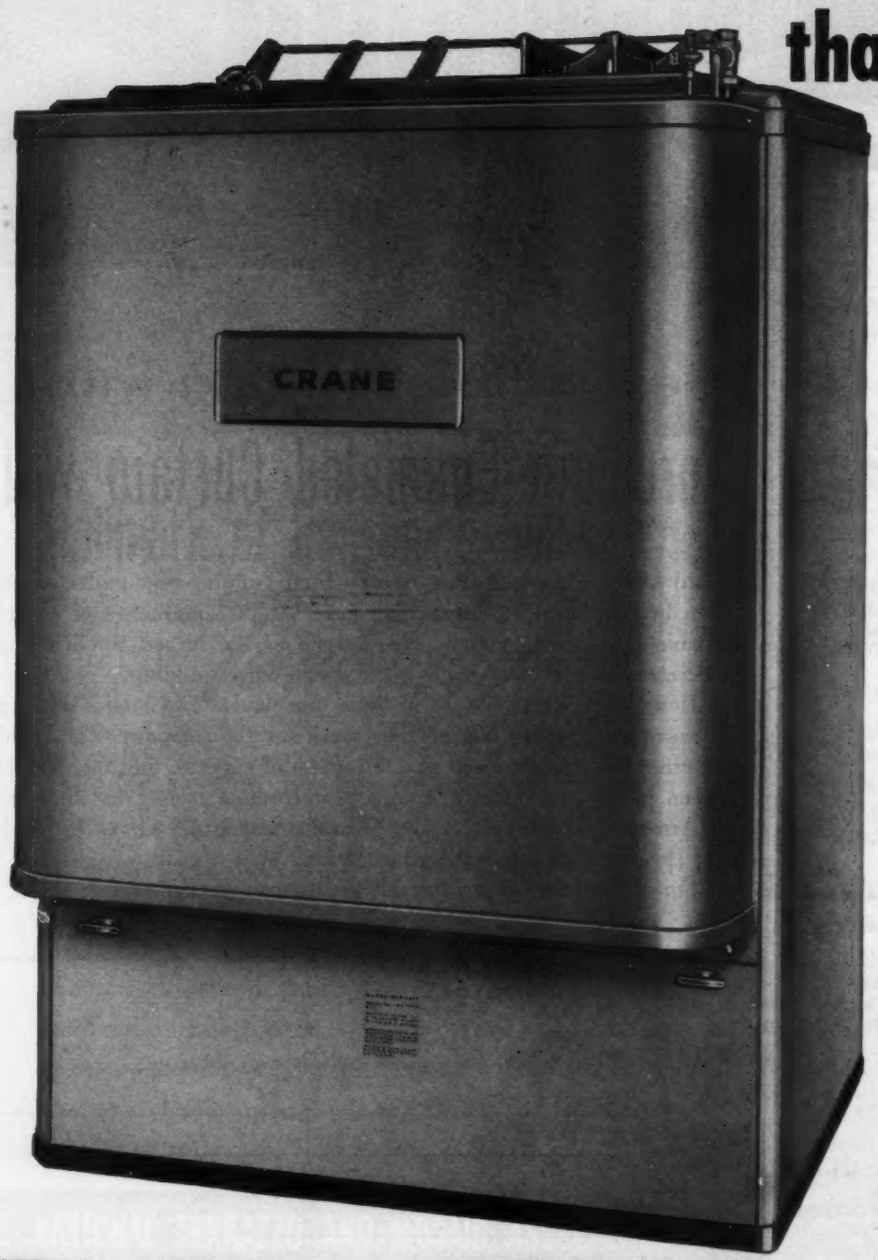
SPECIAL STEELS

SHEFFIELD STEEL DIVISION • ARMCO DRAINAGE & METAL PRODUCTS, INC. • ARMCO INTERNATIONAL CORPORATION

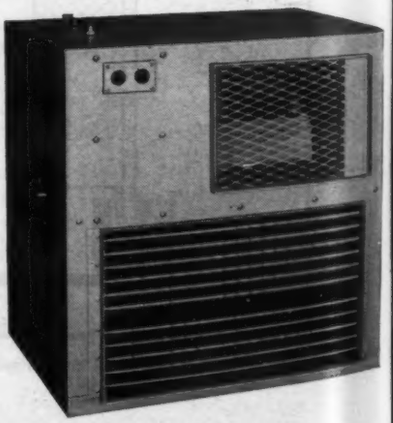
NEWS from CRANE for architects . . .

A WATERLESS AIR

that doesn't have



Air Cooled or Water Cooled, Crane Year 'Round Air Conditioners (including furnace) are handsome units . . . and so compact they fit anywhere.



Air Cooled Compressor-Condenser unit goes outside the house (hidden by landscaping), in the garage, even on the roof or in the attic. No noise disturbance because it's not in the house.

CRANE

R CONDITIONING SYSTEM

ve to be custom-built on the site!

Crane's new *Air Cooled* Year 'Round Air Conditioners have broken through the last two roadblocks to efficient, low-cost air conditioning.

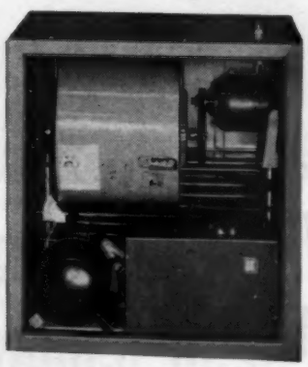
First—*no water is used*, so the cost of water and restrictions on its use no longer stand in your way.

And, second—when you use Crane *Air Cooled* Air Conditioning the system does *not* have to be custom-built on the job by a refrigeration serviceman, as in the past. A special new Crane valve lets the furnaceman do the entire job himself, because the cooling unit is fully charged and sealed at the factory. And the cooling coils go right in the furnace!

Crane *Air Cooled* Year 'Round Air Conditioners are quiet because condenser and compressor are located *outside* of the house where they can't be heard. And maintenance costs are much lower. Crane *Air Cooled* air conditioners, like Crane *Water Cooled* units, have *two* compressors instead of the usual one, so cooling is more efficient and humidity is kept lower.

Both Crane *Air Cooled* and Crane *Water Cooled* units are available in two- or three-ton sizes, with gas- or oil-fired furnace. Or they may be had as Add-On units.

So, even if you've been forced to steer clear of air conditioning in the past, be sure to check into Crane *Air Cooled* Year 'Round Air Conditioning for your next job.



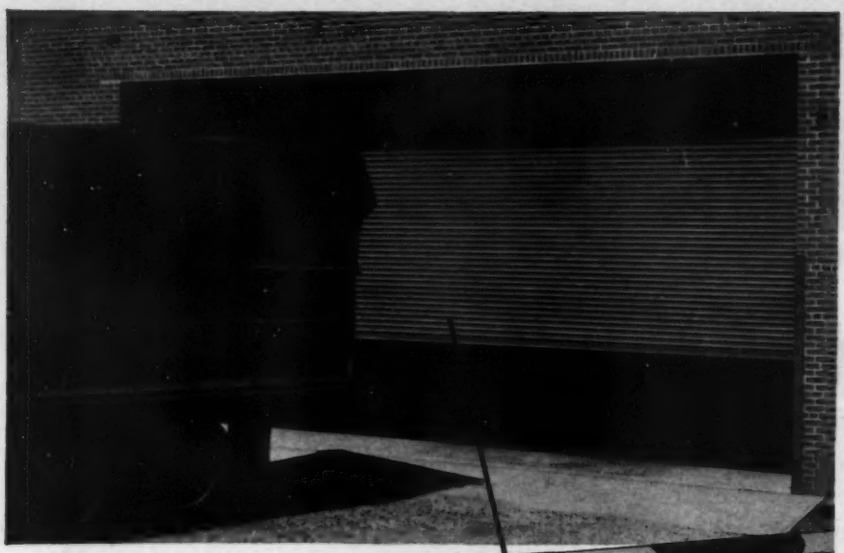
Note there are *two* compressors in the Compressor-Condenser unit. One operates almost continually, the other cuts in during peak loads. Results in greater cooling efficiency, lower humidity. Cooling coils are inside furnace unit. Cooling lines are precharged and sealed at the factory. Refrigeration serviceman is not necessary to complete installation.

SOON AVAILABLE!

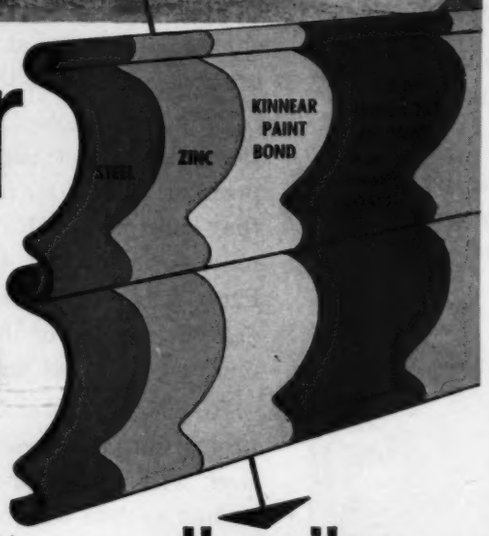
Crane COUNTERFLOW Year 'Round Air Conditioner for basementless houses using perimeter heating.

CRANE CO.
General Offices: 836 S. Michigan Ave., Chicago 5, Ill.
VALVES • FITTINGS • PIPE • KITCHENS • PLUMBING • HEATING

CRANE STARTS ITS SECOND CENTURY OF QUALITY
Founded July 4, 1855



Kinnear Steel Rolling Doors



Kinnear Rolling Doors are as well known for *extra years of service* as for convenience, space-economy and protection.

Two of the major reasons for this are shown in the drawing above at right.

The rugged interlocking steel slats are *heavily* galvanized — with 1.25 ounces of pure zinc per square foot of metal, by ASTM standards.

Then Kinnear's Paint Bond, a special phosphate solution is applied to make sure paint applied later will *cover thoroughly, adhere immediately, and stay on longer.*

That's why Kinnear Rolling Doors cut maintenance costs to the bone, and deliver peak efficiency year after year!

Opening straight upward, Kinnear Rolling Doors coil compactly *out of the way* above the doorway. Materials placed within inches of the face of the door curtain won't hinder its smooth, easy operation. Surrounding floor and wall space is fully usable at all times.

Kinnear Rolling Doors are built to fit openings of any size. Kinnear Motor Operators add the convenience of push-button control, with remote-control switches at any number of points, if desired.

Write for the latest Kinnear Catalog!

Heavily Galvanized

No wonder users report 30, 40 and 50 years of *efficient, daily* service from

KINNEAR
ROLLING DOORS
Saving Ways in Doorways

The KINNEAR Mfg. Co.
FACTORIES:
1860-80 Fields Ave., Columbus, Ohio
1742 Yosemite Ave., San Francisco 24, Calif.
Offices and Agents in All Principal Cities

AE LITERATURE

(Continued from page 314)

MASONRY WALL REINFORCEMENT

• A four-page, illustrated bulletin offers a description, technical data and joint reinforcement specifications of *Dur-O-waL* masonry wall reinforcement. *Dur-O-waL Div., Dept. A, Cedar Rapids Block Co., Cedar Rapids, Iowa.**

PRODUCT DIRECTORIES

• A seven-page product specification directory is an up-to-date reference of the products manufactured by the *Nat'l Gypsum Co., Buffalo 2, N. Y.**

• A 157-page, spiral bound catalog includes an alphabetical list of 100 member manufacturers of NAFEM and a detailed, classified product directory describing products for commercial kitchens. *Nat'l Assoc. of Food Equipment Mfrs., 261 Madison Ave., New York 16, N. Y.*

• *Building Products Technical Information Bulletin No. 71* contains manufacturers data from members of the *Producers' Council, Inc., 1001 Fifteenth St., N. W. Washington 5, D. C.*

STUD DRIVER

• An 8-page folder contains illustrations and specifications of the model 450 *Remington Stud Driver* and accessories. *Remington Arms Co., Inc., Bridgeport 2, Conn.*

OFFICE FURNITURE

• *Brochure T-1* contains 20 illustrated pages describing the use of executive and general office furniture in traditional and modern design. *Desks, Inc., 71 Fifth Ave., New York 3, N. Y.*

CONTROL SYSTEMS

• *Packaged Control Systems and Representative Applications* discusses the relationship of packaged Control Systems to the smaller industrial firms. *John C. Whiddett Co., Bala-Cynwyd, Pa.*

• *Installation Manual for Shaw Panel Baseboard Radiators* describes and illustrates the step by step procedure in 16 pages. *Shaw-Perkins Mfg. Co., Pittsburgh 19, Pa.**

TERMITE SHIELDS

Installation details for a prefabricated, self-locking metal termite shield are available in a 30-page booklet from *Tennison Bros., 450 N. Bellevue, P.O. Box 53, Memphis 1, Tenn.*

Architect's drawing of the 25-story skyscraper made possible by ingenious use of welded design.

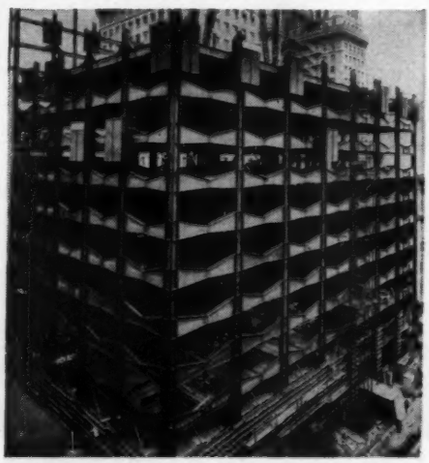
Close-up of finished weld between beam flange and column. "Fleetweld 5" and "LH-70" were used throughout the job.

Only $304 per ton frame cost with welded design!

THIS 25-story San Francisco skyscraper, with a 5,300-ton steel frame, has been erected for a cost of only $304 per ton. Erection of the building with welded design breaks a construction halt in San Francisco due to strict demands of the 1948 building code.

Lincoln engine-driven welders and electrodes were used to effect maximum economies possible with welded design of this 459,000 sq. ft. office building.

You can make similar welding savings by using welded construction. Get latest structural cost-cutting facts by writing on your letterhead to:

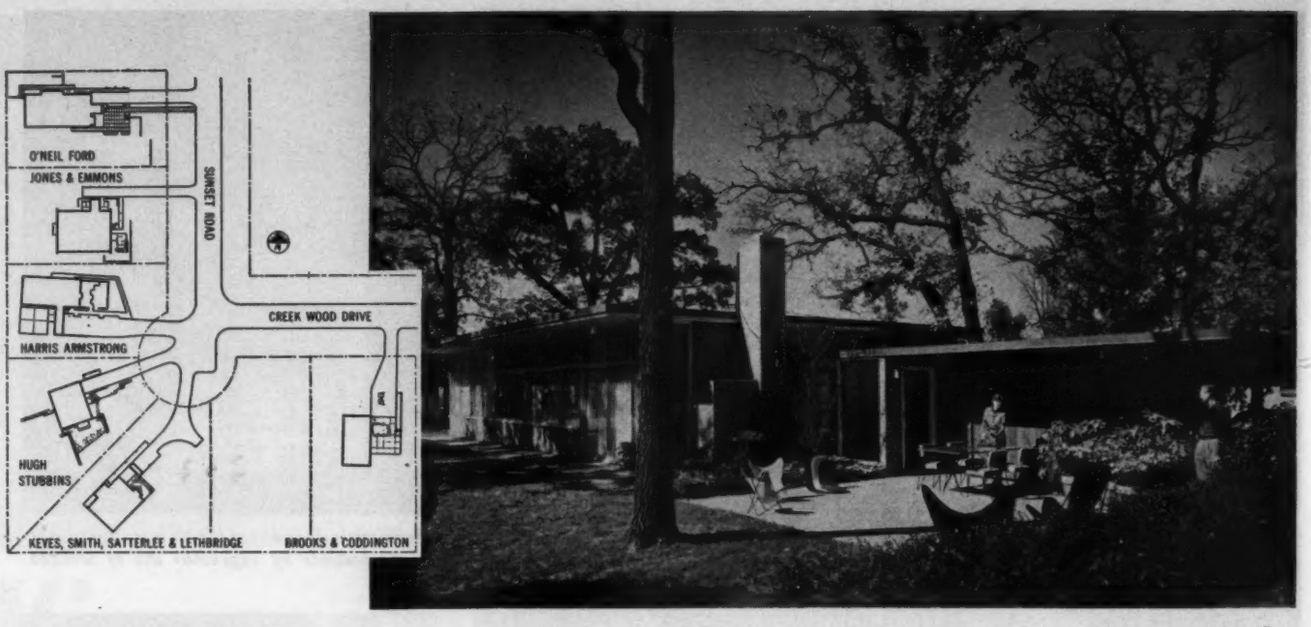


Erection of the Equitable Life Assurance building in San Francisco showing tapered continuously welded columns and "butterfly" spandrel beams which are welded to the columns.

THE LINCOLN ELECTRIC COMPANY

Dept. 2601 • Cleveland 17, Ohio

The World's Largest Manufacturer of Arc Welding Equipment



KOHLER PLUMBING FIXTURES

are used exclusively in the six homes of Research Village

ARROWHEAD *lavatory*, WELLWORTH *closet and* COSMOPOLITAN *bench bath.*

Kohler fixtures and fittings in all the bathrooms, washrooms and kitchens are among the provisions for modern comfortable living and beauty in the six homes developed by United States Gypsum at Barrington Woods, Illinois. The architect-builder teams are to be commended for new ideas in practical home design and use of building materials. Kohler fixtures include Cosmopolitan and Minocqua baths; Arrowhead, Gramercy, Chesapeake, Hampton, Jamestown and Strand lavatories; Placid, Wellworth and Bolton closets. Kitchens contain Kohler built-in sinks of acid-resisting enameled cast iron—Delafield and Clearfield.

DELAFIELD *sink*

Kohler Co., Kohler, Wisconsin
Established 1873

KOHLER OF KOHLER

PLUMBING FIXTURES • HEATING EQUIPMENT • ELECTRIC PLANTS
AIR-COOLED ENGINES • PRECISION CONTROLS

Framingham Motor Inn (Mass.)
"Winds reached a velocity of 125 miles a hour . . . we did not lose one FIRE-CHE shingle!" says C. D. McCarthy, Secretar

Talk about wind resistance...

Wheeler Farm, Riverside, R. I.
"While all nearby homes and buildings lo all or a good part of their roofs, we did n lose a single FIRE-CHEX shingle," writ C. A. McBride, Owner.

FIRE-CHEX SHINGLES wouldn't say "Uncle" to the Hurricanes

Here's *real* proof that Fire-Chex shingles have no equals for rugged strength and wind-resistance.
Not a single Fire-Chex roof, inspected in the wake of hurricanes Carol, Edna and Hazel, was found to be damaged!

You can specify unequalled protection and value in roofing, Fire-Chex, for just a few dollars more than conventional materials. And for *much less* than slate or tile (both of which knuckled under to the hurricanes). By *any* comparison, Fire-Chex are an economy. "They will outlast conventional roofing several times over," as stated by a foremost authority.* And Fire-Chex are the only roofing of any kind rated Class A for fire-safety, without asbestos underlayment!
Choose from a wide range of Fire-Chex shadow blends and solid colors to give your homes distinctive beauty. Ask your Carey representative for samples, application data and full-color literature.

*Name on request

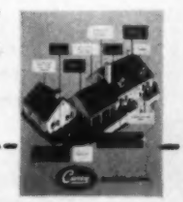
Carey

THE PHILIP CAREY MFG. COMPANY, Lockland, Cincinnati 15, Ohio
In Canada: The Philip Carey Co., Ltd., 277 Duke St,, Montreal 3, P.Q.

Better products for better building since 1873

Bathroom Cabinets and Accessories • Ventilating Fans • Access Doors
Ceramo Asbestos Siding • Thick-Butt Shingles • Reflective Fire-Guard
Blanket Insulation • Fire-Chex Asbestos-Plastic Shingles

FREE FOLDER! *Mail coupon today for free copy of folder showing Fire-Chex Shingles and other fine Carey products in full color! Or see A.I.A. File No. 12.*



THE PHILIP CAREY MFG. COMPANY
Lockland, Cincinnati 15, Ohio Dept. AR-4

☐ Please send my free copy of folder and complete information on FIRE-CHEX SHINGLES.
☐ Ask your representative to call.

NAME_____
FIRM_____
ADDRESS_____
CITY_____ ZONE____ STATE_____

ANOTHER ELECTRO SILV-A-KING ACHIEVEMENT!

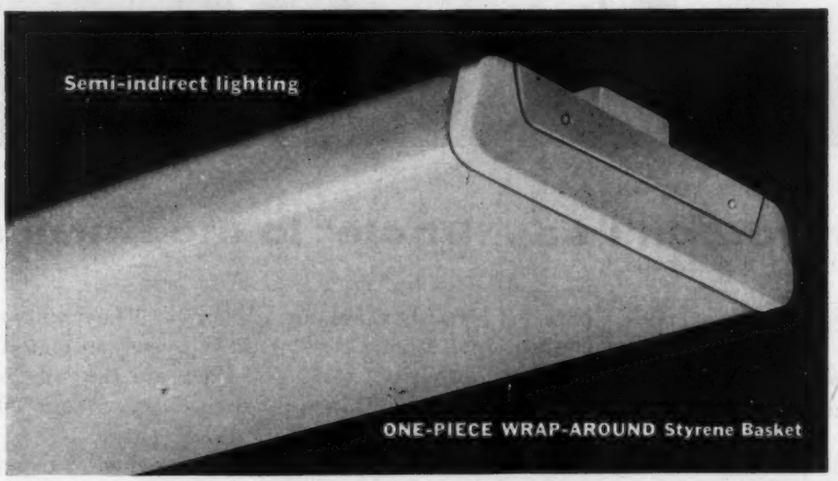
NOW BETTER LIGHTING AT EVERY LEVEL!

BETTER AT THE CEILING LEVEL
Skylume delivers an optimum 75% uplight to minimize typical high contrast areas on the ceiling. The overall ceiling lighting achieved by this semi-indirect fixture adds to the attractiveness and comfort of the entire installation.

BETTER AT THE FIXTURE LEVEL
Skylume is designed for pendant mounting and offers an exclusive one-piece, exceptionally shallow, wrap-around styrene basket. This trim, neat, smooth-line styling is extremely pleasing to the eye and gives a distinctive appearance to any interior.

BETTER AT THE WORKING LEVEL
Skylume provides 75% Uplight and 25% Downlight to achieve an unusually low brightness contrast ratio. Even with higher lighting levels, this properly diffused illumination eliminates glare so as to provide exceptionally comfortable lighting.

SKYLUME



SKYLUME IS AVAILABLE IN:
Rapid Start and Slimline (Standard also available) 2 ft.-4 ft.-8 ft.—2 lamp, 3 lamp, 4 lamp.

- Styrene with 15% transmission factor is standard. Plexiglass also available . . . as well as enclosures with higher transmission factors for surface mounting. All open from either side for easier maintenance.
- All models have continuous wireways for interconnected units.
- "Lite-Gard" Fuse which isolates individual fixtures against thermal and electrical overload available with all models.

Write for the name of the Electro Silv-A-King district manager near you . . . and new Specification Data Catalog.

Electro Silv-A-King Corporation
1535 South Paulina Street, Chicago 8, Illinois
Spruce & Water Sts., Reading, Pennsylvania

DESIGNERS AND MANUFACTURERS OF THE FINEST IN LIGHTING

THE RECORD REPORTS

WASHINGTON

(*Continued from page 38*)

this bill have given to us 39 pages of intricate, complex procedures, with more Federal controls than have been seen in any seriously considered bill in recent years, with a pittance of Federal funds and with provisions which forecast long delays."

All of the bill's opponents pointed to excessive Federal controls and to long delays involved in settling serious constitutional questions in nearly all the 48 states before the state school building authorities could get into operation. Many witnesses also expressed support for S. 5, Senator Hill's proposal for a two-year, $500 million (per year) program of direct grants-in-aid to the states, modeled after the Hill-Burton hospital program.

In the House, the early Education and Labor Committee discussions indicated the chairman, Graham A. Barden (D-N. C.), has not lost his well-known reservations about Federal school assistance programs. One session heard a joint defense of their proposed grants-in-aid legislation by Rep. Carroll D. Kearns (R-Pa.) and Rep. Cleveland M. Bailey (D-W. Va.). Their bill, growing out of hearings held last year by a subcommittee of which Representative Kearns was then chairman, would have the Federal government match the states in whatever appropriations are fixed as necessary by the House Appropriations Committee, the funds to be channeled directly through chief state school officers to the neediest districts as determined by the states. Chairman Barden (and some other committee members) objected to provisions of the bill setting minimum-wage labor regulations and providing for Federal judicial review. Mr. Barden added: "Let's not oversimplify this very pleasant situation of passing the buck to the Appropriations Committee."

FIRST HEARING HELD ON OMNIBUS HEALTH BILLS

Extensive hearings on the omnibus health bills (HR 3458 and HR 3720) embodying the principal proposals of President Eisenhower's health message (AR, March 1955, pp. 290–294) were prefaced early last month by a session of the House Committee on Interstate and Foreign Commerce at which major

(*Continued on page 326*)

New Prudential Building to burn coal the modern way

Ultra-modern in all respects, the new 41-story building of the Prudential Insurance Company of America in Chicago incorporates the latest developments in design, fixtures and construction. This beautiful structure will be completely air-conditioned and will offer its occupants all possible conveniences.

Among those conveniences will be Prudential's heating system, as up-to-date as the building itself. This most modern building in the country will burn *coal.* Cleanly. Efficiently. And its completely automatic coal handling and burning installation will provide sure, even heat *economically* under all conditions.

Investigate Your Fuel Costs

If you're planning to modernize your plant or build a new one—or if you are just interested in cutting fuel costs—find out how coal, burned the modern way, compares to other fuels. Why not talk to a consulting engineer or your nearest coal distributor. Their advice may save you thousands of dollars each year.

facts you should know about coal

Up-to-date coal burning equipment can give you 10% to 40% more steam per dollar.

Automatic coal and ash handling systems result in a virtually labor-free plant.

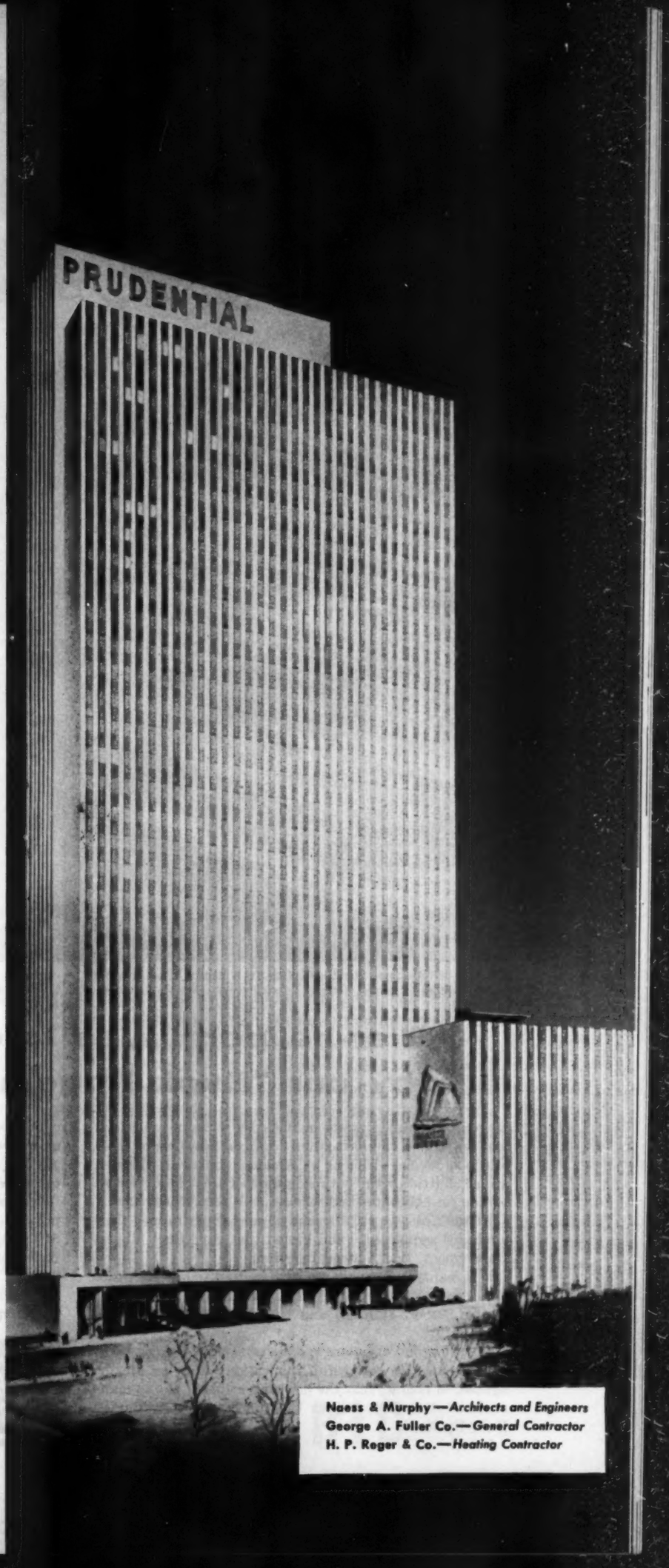
Coal is the safest fuel to store and use. No dust or smoke problems when coal is burned with modern equipment.

In most industrial areas, bituminous coal is the lowest-cost fuel available.

Between America's vast coal reserves and mechanized coal production methods, you can count on coal being plentiful and its price remaining stable.

For further information or additional case histories showing how other plants have saved money burning coal, write to the address below.

NATIONAL COAL ASSOCIATION
Southern Building, Washington 5, D.C.



Naess & Murphy—*Architects and Engineers*
George A. Fuller Co.—*General Contractor*
H. P. Roger & Co.—*Heating Contractor*

The new Barrett-Roofed Pier 57, W. 15th St. & Hudson River, New York • Architect: Madigan - Hyland
General Contractor: Corbetta Construction Co. Roofer: United Roofing & Waterproofing Corp.

Pier-heliport . . . as foreseen in 1944 by our "Buck Rogers Department"

Eleven years ago, Barrett published a series of functional roof projects in the form of institutional ads. One of these projects, developed for us by Architect Caleb Hornbostel, was a "shuttle airport" utilizing the roof area of a riverfront section for helicopter taxi service.

At the time, we recall, some of our friends tapped their foreheads significantly and hinted that our "Buck Rogers Department" was working overtime.

But reality has caught up with us, and today the Grace Line can boast the world's first commercial pier-heliport, located at W. 15th St. and the Hudson River in New York City.

We are proud of having pioneered such an idea so many years before its successful application. And we are delighted, of course, that the new pier-heliport, like so many modern structures, enjoys the protection of a Barrett Built-Up Roof.

For generations, America's leading architects have shown an overwhelming preference for Barrett Roofs. Traditionally outlasting the periods for which they are bonded (up to 20 years) Barrett Roofs—of which the Barrett Specification* Roof is the most famous—may be depended upon to provide maximum weather protection. BARRETT DIVISION, Allied Chemical & Dye Corporation, 40 Rector St., New York 6, N. Y., 205 W. Wacker Drive, Chicago 6, Ill., 36th St. & Grays Ferry Ave., Phila. 46, Pa., 1327 Erie St., Birmingham 8, Ala., 2111 Melrose Bldg., Houston 2, Tex.

Barrett Specification Roofs®

BARRETT ROOFS

OVER 100 YEARS OF EXPERIENCE

*Reg. U. S. Pat. Off.

Miss Foster hates to lose her connections

Moving can be a hardship on employees if electrical outlets are not conveniently located.

Electrical availability for dictating machines, telephones, intercoms, and other electrically operated equipment can be quite a problem when office space is relocated. Whether you plan or build offices for your own use or for rental, it's good business to plan to have enough electrical outlets to provide for efficient space utilization — without costly replacement work and unsightly makeshifts. The answer to electrical flexibility is General Electric Q-Floor wiring, the system that makes every square foot of floor space available for outlets.

The General Electric Q-Floor wiring system is designed for installation with cellular steel subflooring. Every cell is a raceway for present and future circuit requirements. No costly alterations, no litter, no tie-up of space, no matter how often or how much your electrical requirements change. You simply drill a hole in the floor and pull wires to connect an outlet. Installations in the Celanese Office Building in Charlotte, N. C., in institutions like Central Power and Light Company's Service Center in Corpus Christi, Texas, and commercial buildings like the ultramodern Prudential Insurance Company Building in Chicago are proving that Q-Floor wiring gives the modern office complete electrical flexibility.

For more information on General Electric Q-Floor wiring systems, call your G-E Construction Materials district office or write to Section C51-45, Construction Materials Division, General Electric Company, Bridgeport 2, Connecticut.

Progress Is Our Most Important Product

GENERAL ELECTRIC

Specified for Today's Finest Public Buildings

WEISART COMPARTMENTS

In the Statler office building, Boston, Weisarts are proving their durable dependability.

provide FINE APPEARANCE MAXIMUM CLEANLINESS AND DURABILITY

Stamina to withstand the hardest usage and still retain their fine appearance makes Weisart Compartments the logical choice for finest office and public buildings. Their enduring serviceability has triple protection (1) steel, galvanized, yet "smooth as glass" (2) Bonderized for added corrosion resistance and positive adhesion of enamel (3) synthetic primer and enamel separately baked. Highly protective surface with lustrous beauty, durable and easily maintained. Choice of 24 colors! Ceiling-hung Weisart Compartments leave floor clear for cleaning. Write for detailed information.

HENRY WEIS MFG. CO., INC., *403 Weisway Building, Elkhart, Ind.*

THE RECORD REPORTS

WASHINGTON

(Continued from page 322)

Administration witnesses were heard in support of the bills. Title II of both bills (they are identical) embodies the proposal for mortgage insurance for construction of health facilities.

Mrs. Oveta Culp Hobby, Secretary of Health, Education and Welfare, noted that Title II is intended to complement the Hospital Survey and Construction (Hill-Burton) Act by aiding "those sponsors of health facilities who could finance the costs of construction if adequate credit were made available from private sources." The proposal, said Mrs. Hobby, "would adapt the mortgage loan insurance device — which has proved so effective in housing and other fields — to construction loans for health facilities. Federal insurance would be made available, in return for premiums paid by the lending institutions, for loans to non-governmental sponsors for the construction or renovation of hospitals, clinics, nursing homes and related health facilities."

Dr. John Cronin, chief of the Division of Hospital Facilities of the Department of Health, Education and Welfare, also testifying in support of the Administration bills, revealed that states are expected to complete surveys of their chronic disease hospital needs and revise construction plans by the beginning of July. The expansion of the Hill-Burton program authorized by the last session of Congress was accompanied by a $2 million appropriation specifically allocated to assisting the states to survey their existing facilities in the "new" Hill-Burton categories of nursing homes, treatment centers, rehabilitation facilities and hospitals for the chronically ill, and to help them develop revised plans and construction programs.

Dr. Cronin noted that none of the $21 million appropriated last year to begin construction of the new types has been allocated, pending completion of the state surveys. A few states, he said, may complete their surveys and report to the Division as early as April.

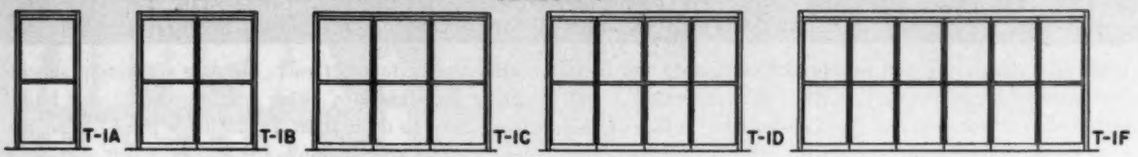
PRIVATE HOSPITAL NEEDS CITED IN HOOVER REPORT

Congress early last month received a Hoover Commission medical services report which recommended that the

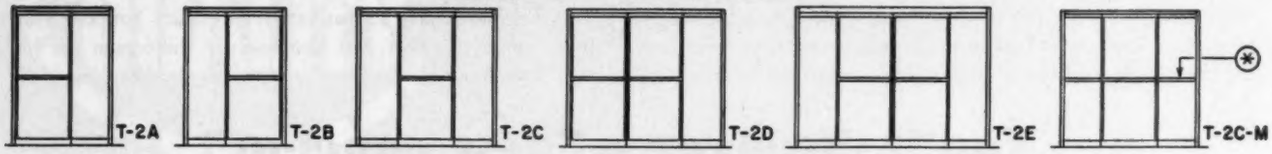
(Continued on page 330)

YOUR CLIENTS WILL APPRECIATE

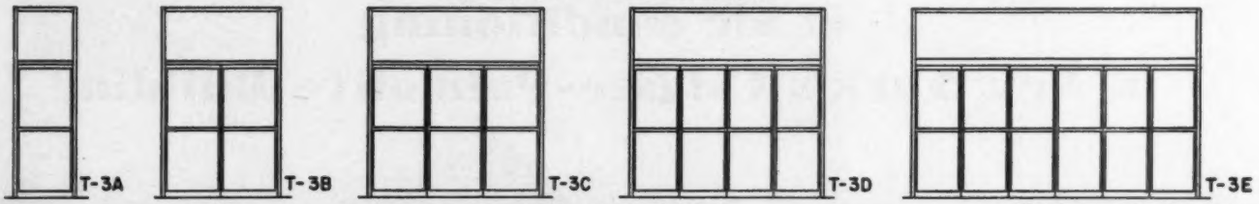
SERIES T-1



SERIES T-2 FRAMES WITH SIDELIGHTS



SERIES T-3 FRAMES WITH TRANSOMS



OTHER FRAMES AVAILABLE

* MIDDLE RAIL CAN BE SUPPLIED.

THE MANY ECONOMIES OF

It's the "long-run-cost" that counts. Door maintenance and insurance over the years add up to a tremendous figure. That's why there's a strong trend to replace ordinary doors with **Schacht STAINLESS STEEL Doors & Frames.** They *cost less to maintain . . . far less to insure*—yet their price is but a trifle more.

All This and Style Too!

Interesting Data on Request

SCHACHT ASSOCIATES, INC.

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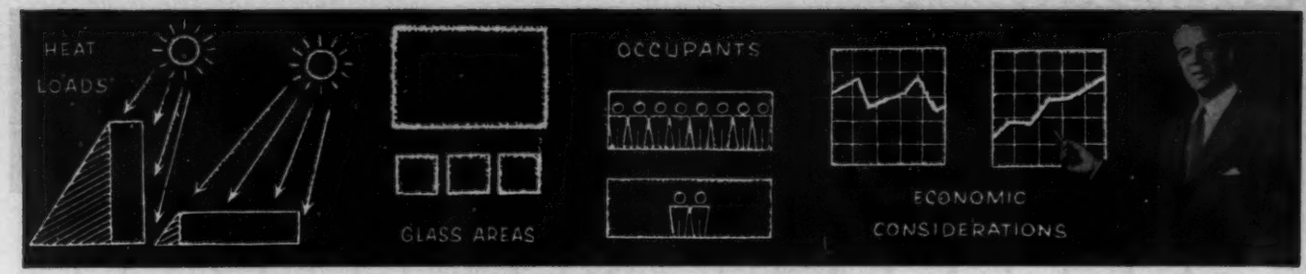

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 326*)

Veterans Administration terminate its hospital construction program "forthwith" and dispose of existing facilities determined to be surplus. All outstanding authorizations and appropriations for construction of additional VA general hospitals should be rescinded except for those now under construction or contract, the report stated.

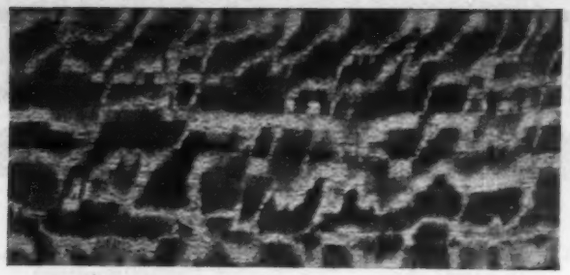
Attention was called to the lack of coordination between the Federal departments concerned with hospital facilities. A new Federal Council of Health was proposed to coordinate policy at the highest level.

The Commission indicated its belief that emphasis on Federal beds is unduly strong when private communities are so much in need of hospitals. It noted that estimates based on bed-ratio formulas presented in the original Hill-Burton hospital construction legislation (in 1946) indicate that the country still needs 812,000 additional community hospital beds, or almost eight times the number already built under the program. The Commission's task force pointed out that bed ratios on which this estimate is based are in need of review. Nevertheless, the Commission report said:

"The figure is cited . . . as a general indication of the enormous need for civilian hospital construction at a time when construction of unneeded Federal hospital capacity continues to grow with concurrent increases in the Federal demand for scarce medical personnel to man those facilities."

Criticism was directed at the Federal government for not heeding the warning of the first Hoover Commission six years ago. That body called attention to excessive hospital building, urging that new Federal bed construction be halted except for mental hospital facilities. Since 1952 there has been a decrease in the load of military hospitals and a general increase in unused beds. Yet construction of new facilities has continued. The report noted that for the VA general hospitals there have recently been waiting lists for admission only in scattered instances even for non-service-connected cases. VA mental hospitals have a current waiting list of 16,000, all non-service-connected. The 53,000 beds in neuropsychiatric hospitals operated

(*Continued on page 334*)



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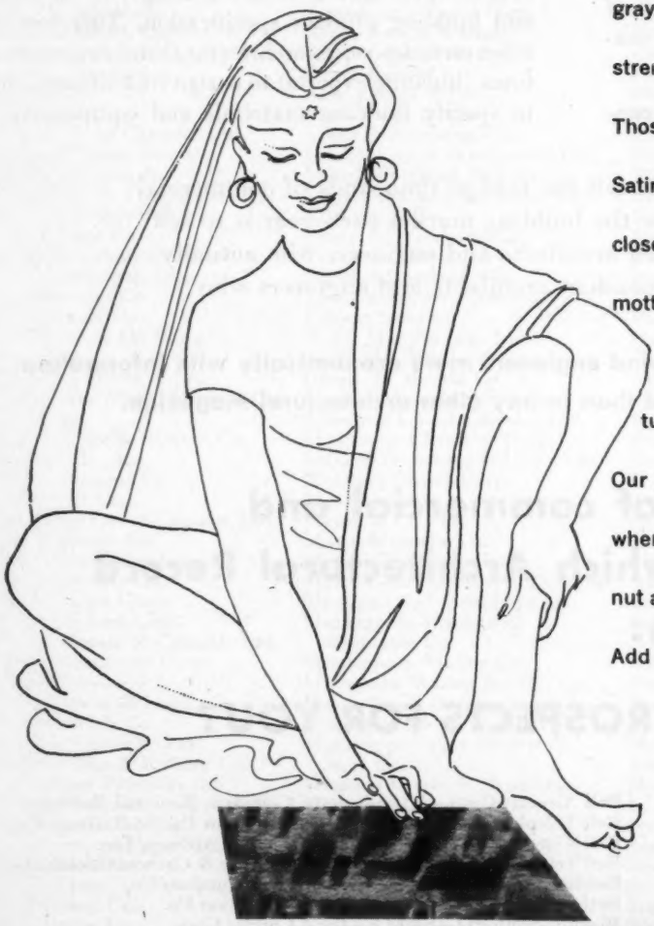

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THE RECORD REPORTS

WASHINGTON

(Continued from page 330)

by VA are full. Additional beds numbering 3000 in this category soon will be available.

"Some number of beds must be kept in reserve in Federal hospitals," the report concedes. "Yet the sums involved in unused construction are indicated by multiplying the number of unused beds by normal hospital construction costs. Using only one half the current average construction cost per bed, the total original cost of the unused beds probably exceeds $500 million.

"It may be argued that this excessive government hospital construction is needed against war emergency. An answer can well be that had these funds been used to relieve the civilian situation, the civilian hospitals would equally be available for war emergency."

The hospital survey and construction program under the Hill-Burton legislation of 1946 was called "a useful program." The Hoover Commission would, however, now subject it to reappraisal, particularly as to the validity of bed-ratio standards, the regionalization of hospital services and the relation of the small community hospital to the total hospital program. It would assign such reconsideration to the proposed Federal Council of Health.

CIVIL DEFENSE HEARINGS HELD BY SENATE GROUP

The recent revelations by the Atomic Energy Commission about the extent of radioactive fallout from the hydrogen bomb stirred a sudden revival of interest in civil defense in the Congress — or at least in one committee of the Congress. The Senate Armed Services Committee named a subcommittee on civil defense headed by Senator Estes Kefauver (D-Tenn.) to consider what measures ought to be taken in the light of the new information.

The Administration proposed creation of a special commission on civil defense to report to the Congress before the end of this session on appropriate measures. Arthur S. Flemming, director of the Office of Defense Mobilization, who presented the Administration proposal, said all previous industrial dispersal plans are now outmoded.

(Continued on page 336)

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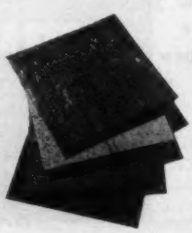

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RUBBER TILE
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THE RECORD REPORTS

WASHINGTON

(*Continued from page 334*)

Federal Civil Defense Administrator Val Peterson said much thinking about defense against massive bomb attack is now obsolete and "possibly dangerous." Mr. Peterson reiterated that mass evacuation of civilians from target areas is one of the best protections against nuclear weapons. "In my mind, there is no question as to whether or not we will plan for evacuation of people in our target cities," he said. "The only question is how large an area we will evacuate."

The matter of shelters had come up again in the AEC report itself. In the section entitled "Protection Against Fallout," AEC said: "Test data indicate that the radiation level, i.e., the rate of exposure, indoors on the first floor of an ordinary frame house would be about one half the level out-of-doors. Even greater protection would be afforded by a brick or stone house. Taking shelter in the basement of an average residence would reduce the radiation level to about one tenth that experienced out-of-doors. Shelter in an old-fashioned cyclone cellar, with a covering of earth three ft thick, would reduce the radiation level to about 1/5000, or down to a level completely safe, in even the most heavily contaminated area. Designs of shelters of simple yet effective construction have been prepared by the Civil Defense Administration and are available to the public."

The subcommittee and the witnesses were agreed on the need for a more vigorous educational program to acquaint the public with the possible hazards.

"It's about time we had a plan submitted to Congress for evacuating towns that would be the target of a hydrogen bomb," said Senator Henry M. Jackson (D-Wash.), a subcommittee member. "So far, I know of no such plan."

Rep. Richard Bolling (D-Mo.) has re-introduced a resolution he first proposed in the last session of Congress calling for thorough study of the necessity for effective civilian defense, by a joint Senate-House Committee on the Economics of Atomic Defense. Representative Bolling believes that "selective industrial and urban dispersal may be the difference between atomic war and peace."

Among the suggestions heard by the

(*Continued on page 338*)

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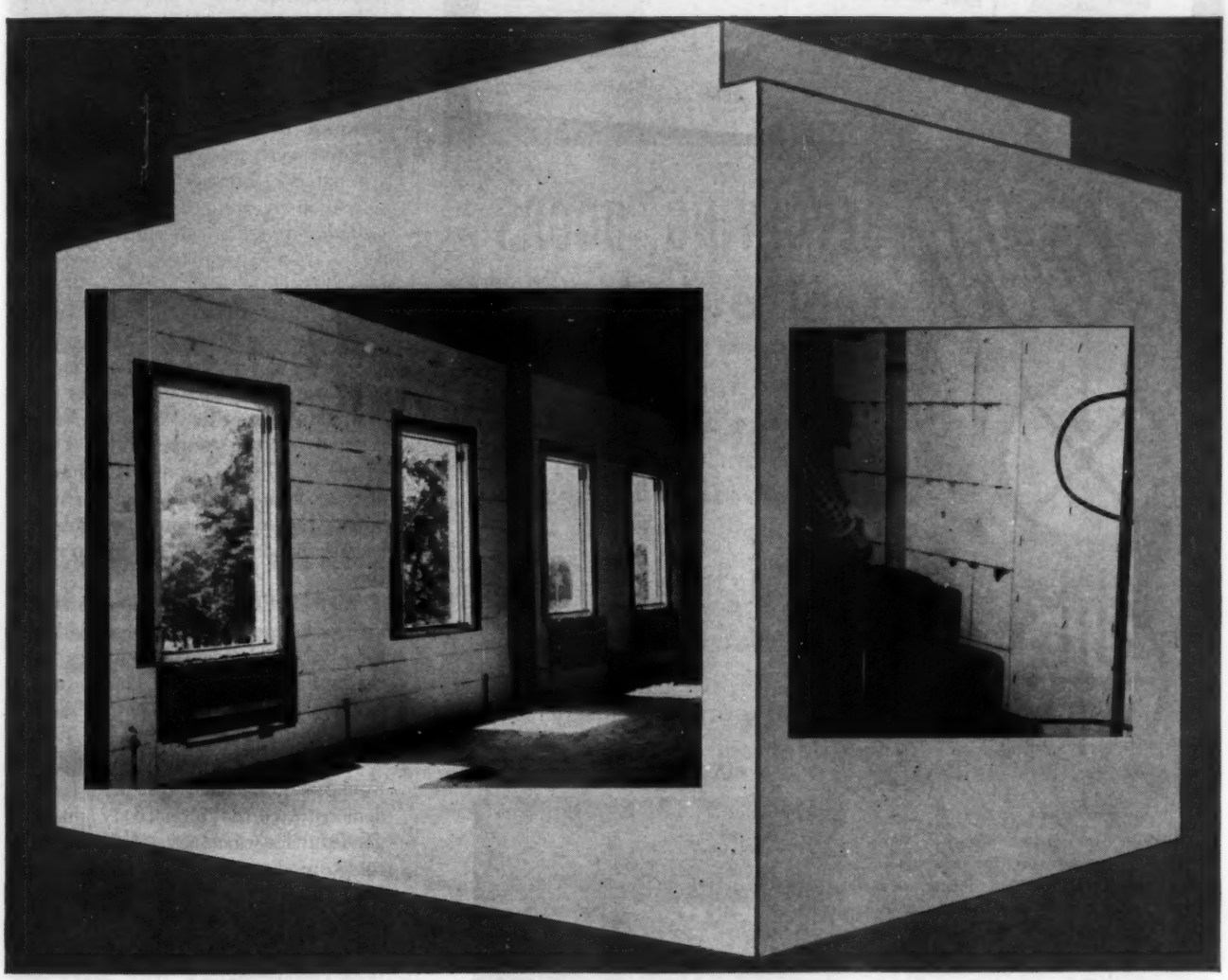

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 336*)

subcommittee was a proposal for construction of miles of ditches parallel to major road systems. These would be narrow cuts, about six ft deep, which could be covered quickly after being occupied by a fleeing populace. The Senators were dubious about this one.

Senator Jackson favored strong consideration of a stepped-up superhighway building program to provide quick egress from cities that are considered possible targets. Such highways, he suggested, could be made a part of the Administration's new highway program now being considered by the Congress.

Senator Kefauver joined in this view, urging revision of the White House program to include escape routes. Unless this is done, he observed, the question of constructing shelters along highways outside major cities would be academic, because nobody would be able to reach them.

Another FCDA suggestion was the laying of large concrete pipe along highways to shield evacuated citizens from the radioactive fallout. This proposal likewise failed to evoke enthusiasm in the subcommittee.

Administrator Peterson described Milwaukee's evacuation test and said it demonstrated that a relatively small expenditure for widening roads and bridges could speed up the emptying of a great city. He estimated that if an H-bomb attack were launched against this country at least 50 million people might have to be evacuated.

SOUND CREDIT SEEN AS BASIS FOR SOUND BOOM

Housing Administrator Albert M. Cole has asserted that the skyrocketing rise in home construction worries him not at all — so long as it rests on sound credit. And sound credit supports the present boom, he said last month; he believes demand will sustain it without threat of saturated markets or collapse. He said he had no plans for checking the increase in homebuilding.

Another Federal official who isn't worrying about the rise is William McChesney Martin, chairman of the Federal Reserve Board. He feels the economy can stand a continuing rapid home-

(*Continued on page 340*)

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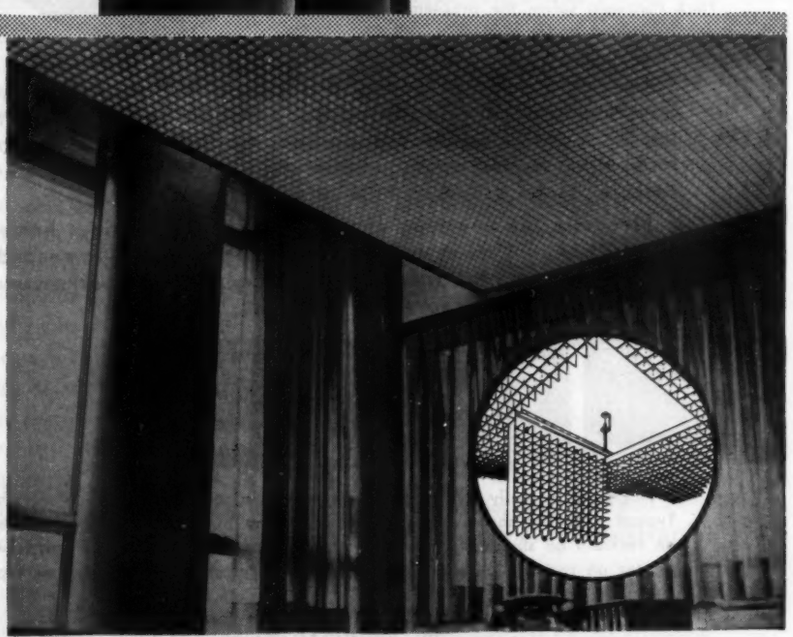

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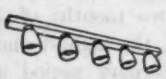
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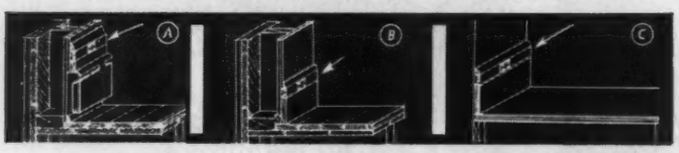

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THE RECORD REPORTS

WASHINGTON

(*Continued from page 338*)

building pace and that it can absorb more new housing and more new office building in the years ahead without being threatened. He is concerned, however, about the no-down-payment feature of so many housing sales. Economic health requires an initial buyer's equity in houses in many more cases than now prevail, he believes.

As new homebuilding continued to show spectacular gains, the Department of Commerce moved to "check the soundness" of the upward spiral with a survey of vacancies. Like other Federal spokesmen, Walter Schneider, chief of construction statistics and economics for the Department's Business and Defense Services Administration, saw nothing alarming in the current boom. But he cited the absence of information against which expansion can be measured, and said the house and apartment vacancy check was being conducted to help fill this gap. The last survey of vacancies was made in 1950. This one is being undertaken at the urging of the President's Council of Economic Advisers and the Housing and Home Finance Agency. For reasons of economy, it must necessarily be conducted on a sampling basis.

Administrator Cole recently told the House Banking and Currency Committee he was convinced the market could readily absorb an annual volume of 1.3 million new dwelling units. He refused to project his opinion for a 10-year period; but the committee's ranking Republican member, Jesse M. Wolcott (R.-Mich.), said he foresaw an expanding economy and more housing "well into the future." He added: "We haven't approached the ability of people to buy housing."

ADDENDA

NEW-CONSTRUCTION-PUT-IN-PLACE continued at record levels, according to the monthly report issued jointly by the U. S. Departments of Commerce and Labor. The February total of $2.6 billion was 12 per cent above the previous February high in 1954. The new-construction total of $5.4 billion for the first two months of 1955 also was a record, the highest mark for any January-February period and 13 per cent

(*Continued on page 342*)

Here's a material for curtain wall construction
that solved a weight problem in Bellevue Hospital expansion

Stainless Steel

Newly installed Stainless Steel panels on the Bellevue Hospital addition. Architects and engineers: Fellheimer & Wagner. General contractors: Buhl Construction Company. Design and construction under the supervision of the New York City Department of Public Works. Stainless Steel panels fabricated by H. H. Robertson Company.

One of the primary advantages of Stainless Steel as a material for curtain wall construction is the saving in weight its use makes possible. Because Stainless is inherently strong and because no allowance need be made for the effect of corrosion, thin sections can be used.

Never has this advantage of Stainless Steel been better illustrated than in the addition of two floors to New York City's Bellevue Hospital. Existing foundations were limited in the amount of additional weight that could be carried. Stainless Steel panels, weighing 14 pounds per square foot compared with 130 pounds for masonry, were used. This permitted the structural steel to be far lighter, too.

The attractive appearance of Stainless Steel was another factor in its use on this hospital. The architect sought to give the addition the appearance of a totally new facility, rather than a mere expansion without aesthetic appeal. Stainless panels accomplished this, along with permanent good looks.

Erection was handled rapidly with a four-man crew installing four 30 square foot panels an hour. The construction had more than the required 2-hour fire ratings and the panels had the insulating quality of a 12-inch masonry wall.

As the producer of USS Stainless Steel, we have worked closely with the fabricators of Stainless Steel panels for curtain wall construction. We'll be glad to send you further information and put you in touch with these fabricators. Write to United States Steel Corporation, Room 4689 525 William Penn Place, Pittsburgh 30, Pennsylvania.

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UNITED STATES STEEL

WASHINGTON (Cont. from p. 340)

above last year's volume for the same months. For the two-month period, private residential building was up 36 per cent, church construction 30 per cent, commercial building 20 per cent; schools (public and private), recreational buildings and military facilities were up by more than 10 per cent; private hospital and institutional construction rose 10 per cent and public two per cent; new private industrial building was up four per cent.

CONSTRUCTION GRANTS FOR MEDICAL SCHOOLS, for expanding or remodeling their facilities, are proposed in a bill introduced by Senator Lister Hill (D-Ala.) and 12 co-sponsors. The bill would authorize $50 million a year for five years for the purpose, with no grant to exceed $3 million, exclusive of grants up to $25,000 for preparing initial plans. Senator Hill said that in most cases the grant would represent 50 per cent of the cost of construction, although larger amounts would be provided where enrollment increases warrant it or in the case of new schools.

HOUSING NOTES: **FHA authority to insure home mortgages** was boosted by $1.5 billion, in a stopgap measure to permit the agency to continue its insuring activities until the Congress can study the situation further. The President has said he will ask later for a $5 billion boost. . . . **Low-rent public housing for the aged** would be provided under a bill introduced in the House by Rep. Barratt O'Hara (D-Ill.). Under the bill, the Public Housing Commissioner would be authorized to make loans and annual contributions to local public housing authorities to initiate construction over the next five years of 250,000 dwelling units especially equipped for the elderly. . . . **Aid for farm housing** and other farm building would be revived by re-enactment of the Sparkman-Jones Rural Farm Housing Act of 1949, as recently proposed by Senator John Sparkman and Congressman Robert Jones, both Alabama Democrats. The program was extended by Congress last year, but the 1956 budget carried no funds for it. . . . The Census Bureau's **survey of housing vacancies** scheduled for April, May and June will cover a minimum of 25,000 dwelling units and may — if hoped-for additional funds are made available — cover multifamily units 100 per cent. . . . **Mortgage volume set a record** in 1954 at $23 billions, the Home Loan Bank Board reported. The total, 16 per cent above the previous high in 1953, represents almost entirely home loans. . . . **Public housing is needed** as one answer to providing shelter for families displaced in slum clearance and urban renewal programs, Housing Administrator Albert M. Cole testified recently. Private housing is being found for more and more displaced families, he said, but there is still no substitute for public housing for the very low income groups. . . . **"How to Make and Use Housing Surveys,"** a 105-page booklet just published by the Housing and Home Finance Agency, describes a "simple, low-cost, step-by-step" method of collecting and analyzing data on local housing conditions on a sample basis. It is available for 55 cents from the Superintendent of Documents, U. S. Government Printing Office, Washington 25, D. C.

(More news on page 356)

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WASHINGTON REPORT: URBAN RENEWAL

(*Continued from page 24*)

Renewal projects contemplated.

7. *Full-Fledged Citizen Participation.* Clarksville has achieved "citizen participation." There is strong support for the public housing program from the business leaders, including the real estate group. Specially appointed advisory groups from the Chamber of Commerce and the City Council are presently functioning. The redevelopment agency will continue to consult Negro leaders.

Asked if private architects have participated in the development of the program, Housing Authority Executive Director Eugene D. Moss cites King & Clark, Clarksville consulting engineers. On architectural work, it's King, Clark & Davis.

Presentation last November of the official HHFA certification of the program was made the occasion of a statewide conference sponsored by the Tennessee Municipal League. Some 250 municipal officials gathered in Clarksville to confer with city, state and Federal leaders in the urban renewal field. Urban Renewal Administrator James W. Follin, outlining the opportunities for cities in urban renewal, stressed that the Housing Act of 1954 provides for a "three-pronged attack on the problem of urban decay instead of the one-pronged attack limited to clearance for redevelopment," the new "prongs" being prevention and rehabilitation.

As for the Federal aids available under the Housing Act of 1954, Mr. Follin gave the following rundown:

"1. The urban renewal service. Its chief purpose is to provide technical and professional assistance in preparing the workable programs and in planning and developing urban renewal programs. The service will consist of a generalized series of pamphlets and information bulletins, on the one hand, and of specialized technical services through visits to local communities, on the other. It will be available on request, and without charge.

"2. Advances for surveys and plans and other preliminary work for urban renewal projects. . . .

"3. Temporary loans for urban renewal projects — sufficient, if necessary, for all working capital requirements.

"4. Definitive (long-term) loans for urban renewal projects — for use when project land is leased rather than sold for development.

"5. Capital grants for urban renewal projects — up to two thirds of net project cost. . . .

"6. Special grants for demonstration projects in urban renewal — also up to two thirds of net project cost. . . .

"7. Special grants for urban planning assistance. . . .

"8. Special provisions for FHA mortgage insurance under a new Section 220 of the National Housing Act, to provide easier financing for building or rehabilitating residential property in an urban renewal area.

"9. Special mortgage insurance provisions in a new Section 221, to facilitate construction for rehabilitation of low-priced residential accommodation to rehouse families displaced, either by urban renewal projects or by other governmental action.

"10. Provision for low-rent public housing to be used in connection with rehousing such displaced families as cannot pay for adequate private housing."

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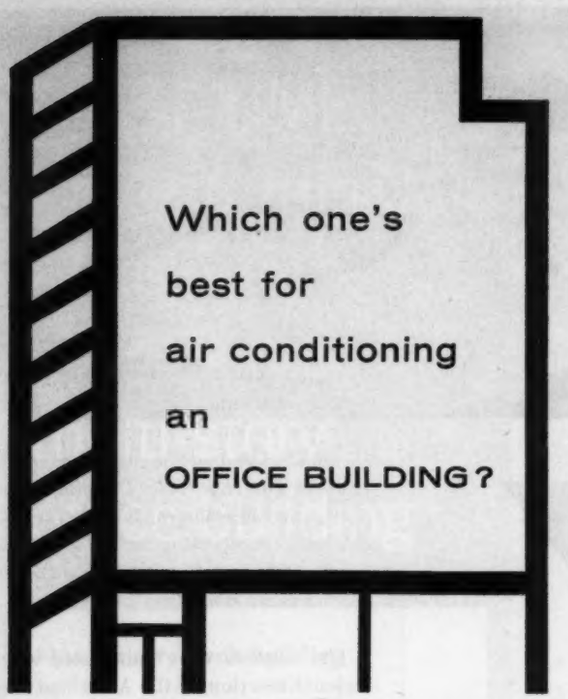

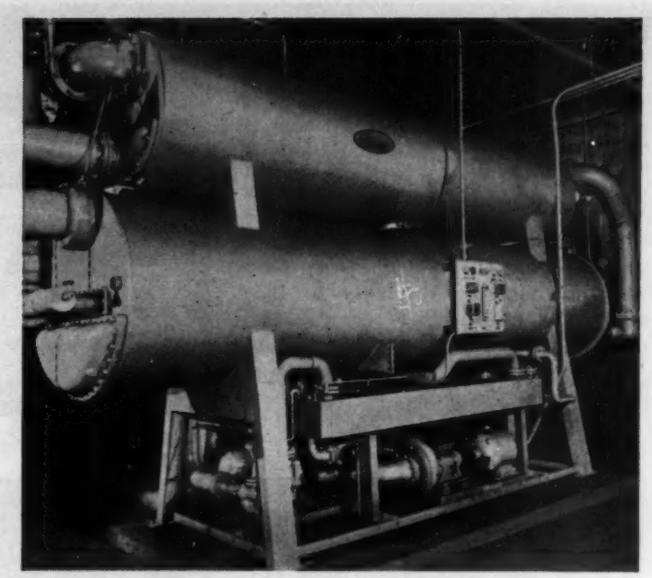

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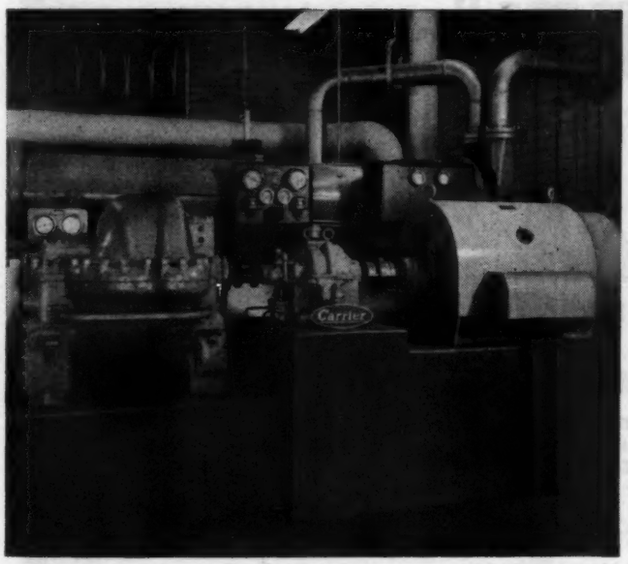

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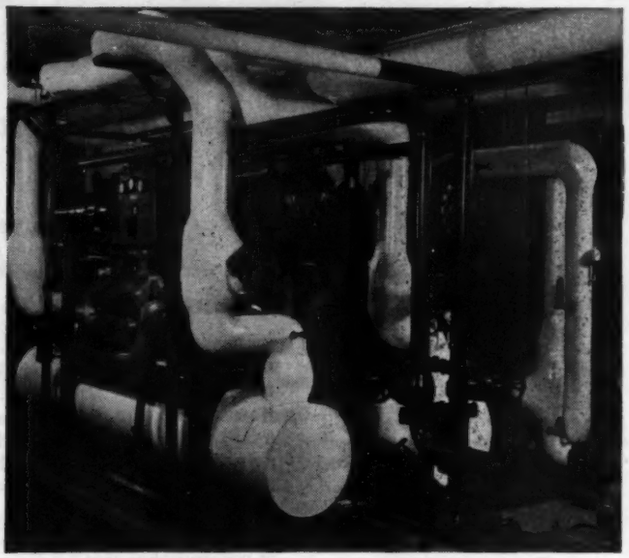

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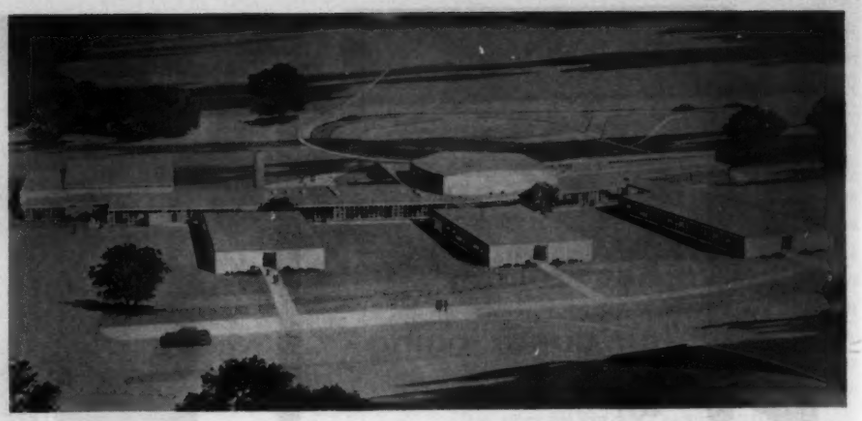
(*Continued from page 12*)

School Awards

planning. Architects are paying more attention to the design of particular spaces and to organizational requirements, said the jury, but "there was very little interior flexibility in the designs, few clear spaces or movable partitions." Not enough thought was given, the jury felt, to materials and large structural elements.



Honorable Mention Citation; Hudson Falls Junior-Senior High School, Hudson Falls, N. Y.; architects Sargent-Webster-Crenshaw & Folley. Jury's comment: Nice organization and good separation of student and community areas

The winners were announced at the regional meeting of the American Association of School Administrators in St. Louis at the end of February, and were published in the magazine's March issue.

Honorable Mention Citation: Tower Street Elementary School, Westerly, R. I.; architects Harriman, Willis & Hayden, Inc. Jury's comment: Skillful repetitive use of standardized classroom pavilions with excellent outdoor activity areas

Honorable Mention Citation: Business Education Building, Orange Coast College, Costa Mesa, Cal.; architects Richard J. Neutra & Robert E. Alexander. Jury's comment: Achievement of architectural beauty with very simple organization of plan

(*Continued on page 348*)

Fairless Works of United States Steel Corporation's plant at Morrisville, Pa., on the Delaware River, is the country's largest single steel construction project undertaken at one time. Waterproofing done by Lewis and McDowell, Inc., New York City.

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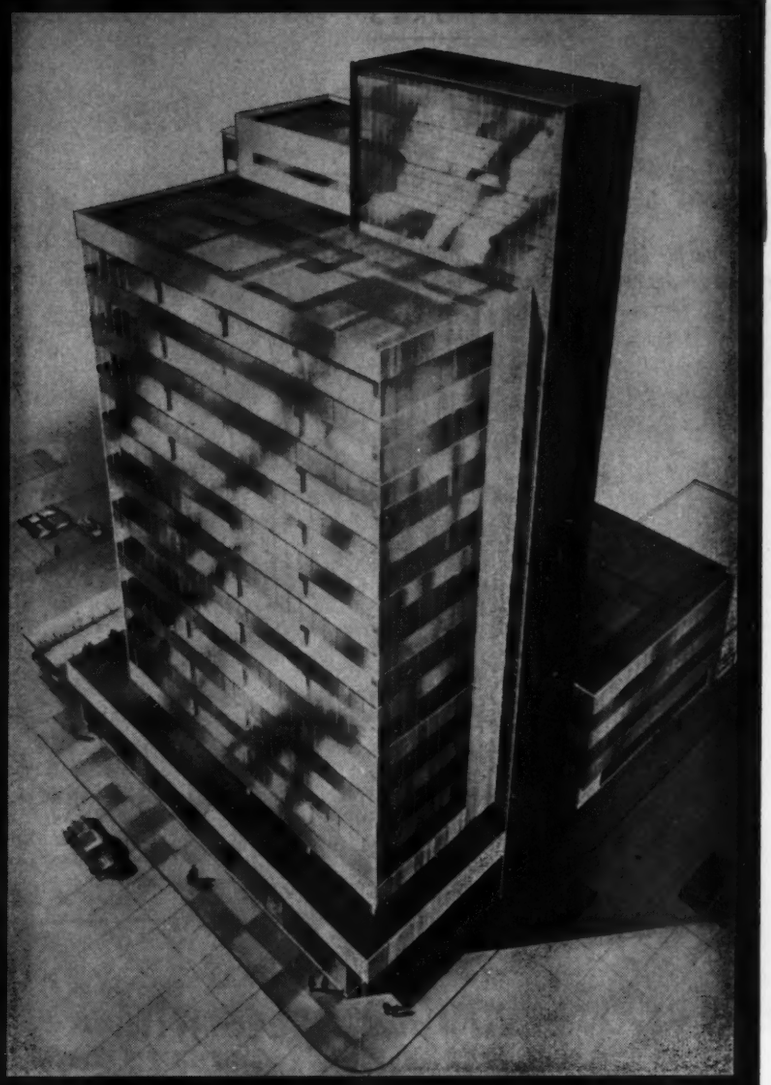

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Another interesting treatment designed by the architects is the use of almost 3300 sq. ft. of *Seaporcel* porcelain exterior soffit for a continuous marquee around the main portion of the building and under the promenade which occurs at the second story level.

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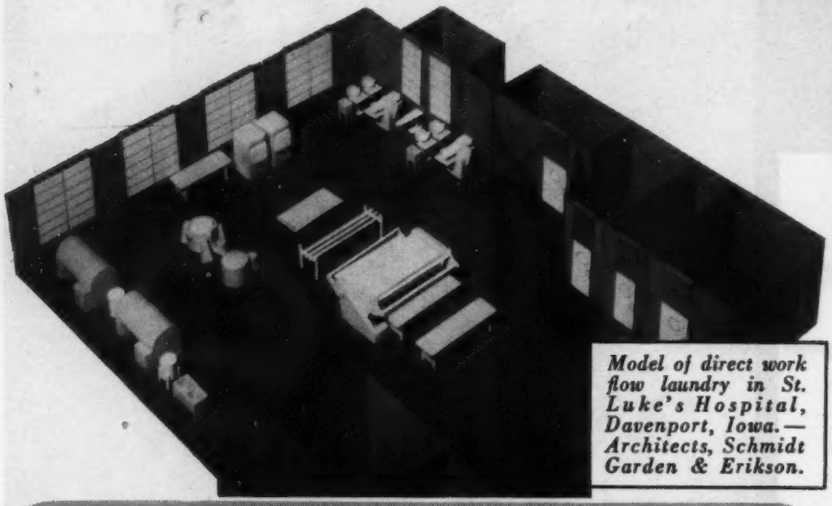
COMPLETE ENGINEERING & ERECTION DEPARTMENTS

(*Continued from page 346*)

School Awards

Honorable Mention Citation: Middleville Road High School, Northport, Long Island, N. Y.; architects Ketchum, Giná & Sharp. Jury's comment: True expression of school campus in which outer area serves as communication for different parts of building



Model of direct work flow laundry in St. Luke's Hospital, Davenport, Iowa.— Architects, Schmidt Garden & Erikson.

Honorable Mention Citation: (above) East Hartford High School, East Hartford, Conn.; architects Nichols & Butterfield and Perkins & Will. Jury's comment: Compact organization of spaces, good circulation pattern, good adaptation to a sloping site

Honorable Mention Citation: (below) Natick High School, Natick, Mass.; architects Shepley, Bulfinch, Richardson & Abbott, and Smith & Sellew. Jury's comment: Well-organized plan and effective grouping of educational elements

Honorable Mention Citation: Middleton State Grade School, Middleton, Wis.; architects John J. Flad & Associates. Jury's comment: an extremely economical first unit for future expansion and development

(*Continued on page 350*)

Save floor space with an efficient laundry layout

If the hospital, hotel or institution you're designing will have its own laundry, inquire about Troy's complete laundry planning service. Troy will work with you and draw up a blueprint layout of equipment based on direct work flow. Troy will also make *detailed* equipment recommendations.

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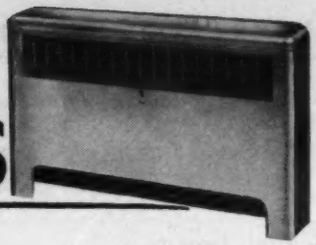

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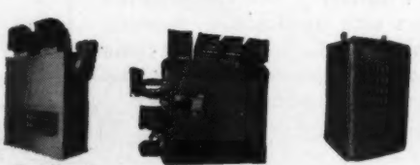

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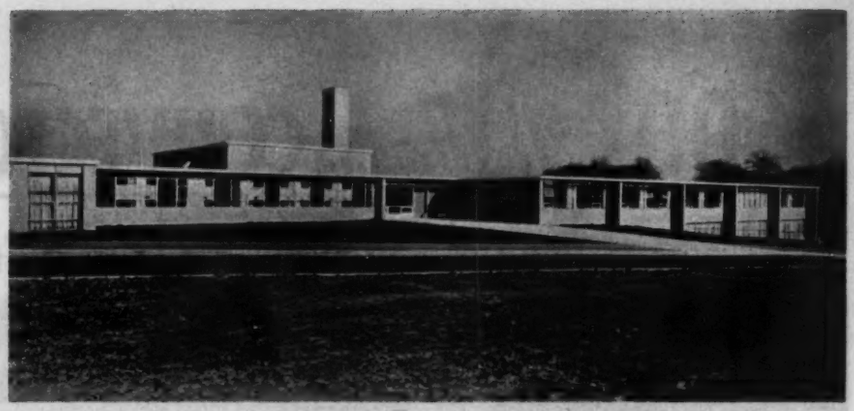
THE RECORD REPORTS

(*Continued from page 348*)



School Awards

Honorable Mention Citation: Blackhawk School, Park Forest, Ill.; architects Perkins & Will. Jury's comment: Cited for skillful use of topography and for excellent use of materials at low cost

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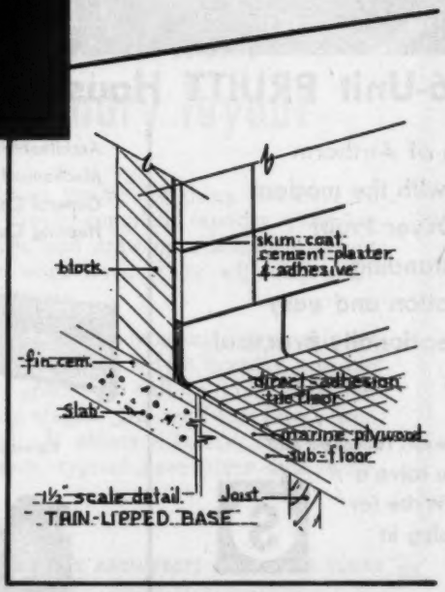
TILES

ROMANY
THIN LIPPED BASES

Available in three sizes and in all ROMANY Buff Body Colors shown in Sweet's. T-3610 is a 6"x5½" sanitary round top base. T-3601 6"x5⅜" and T-63 6"x3⅜" are for use with a Ceramic tile wainscot. All these bases are designed for use with Ceramic Floors installed with adhesive and composition floors such as Linoleum, Asphalt, Rubber and Cork. The use of these pieces eliminates necessity for having sub floors of different levels.



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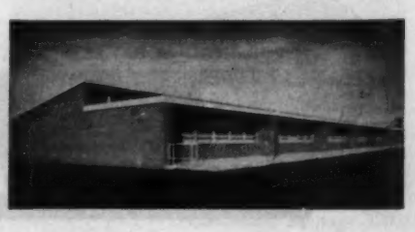
Honorable Mention Citation: Lakeview Elementary School, Mercer Island, Wash.; architects Bassetti, Morse & Aitken. Jury's comment: Interesting daylighting technique, pleasant inter-relation of classroom wings, simple use of materials

Special Feature Citation: (above) James L. Mulcahey School, Taunton, Mass.; The Architects Collaborative. Jury's comment: Interesting and lively fenestration pattern, use of pupils' art work as decorative motif

Special Feature Citation: (below) Rushton Elementary School, Mission, Kans.; architect Donald R. Hollis. Jury's comment: Ingenious use of corridor as an activity and dining space as well as for basic circulation



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designed to meet your most rigid requirements

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Combines classic beauty and rugged strength with the advantages of maintenance-free Aluminum.

Dimensions of Heavy Compound Operator are 5¼" x 3" x 2"

FEATURES OF DISTINCTION

- **PERFECTED WEATHERING** — Kerosseal weatherstripping imbedded in extruded channel, perfect seating of ventilators with wide overlap in frame contact.
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- **EASE OF OPERATION** — Perfect balance and gear ratio permits finger tip control.
- **STRIP PROOF HEAVY COMPOUND OPERATOR** concealed in sill, synchronized distribution of load, unparalleled load safety factor for aluminum awning windows.
- **RIGID FRICTION FREE VENTILATORS** — Head of ventilator operates in individual track attached to frame jamb.
- **HARDWARE**—Solid white bronze attractively designed tilted crank for operating vents. Solid white bronze cam lock and latch for hopper vents.

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RECENT PERIODICALS

(*Continued from page 20*)

the cost of publishing a periodical appears to be the chief hurdle."

A suggestion for a round-robin school publication was proposed by Roger Bailey, head of the architectural school at the University of Utah. "I made the suggestion to the A.I.A. in Washington . . . that the several regional school groups might develop a round-robin monthly publication . . . each school bringing out one issue on its own work . . . and that a compilation of these regional publications might make up an annual national volume."

It was learned from the University of Manitoba that the *Journal* of the R.A.I.C. devotes one issue each year to work and articles by the students of a Canadian architectural school.

The eleven magazines, of various format sizes and ranging from 16 to 90

(*Continued on page 354*)

Above: THE IOWA ENGINEER—Iowa U.; 8½ in. by 11 in.; monthly; approx. 90 pp.; letterpress; halftones; ads; 20¢. Center: CUAS—Cooper Union Art School, N. Y.; 8¾ in. by 11 in.; approx. 16 pp.; offset; halftones and color; no ads. Bottom: SLEEPY HOLLOW—Pratt Institute, N. Y.; 8½ in. by 11 in.; approx. 13 pp.; mimeo

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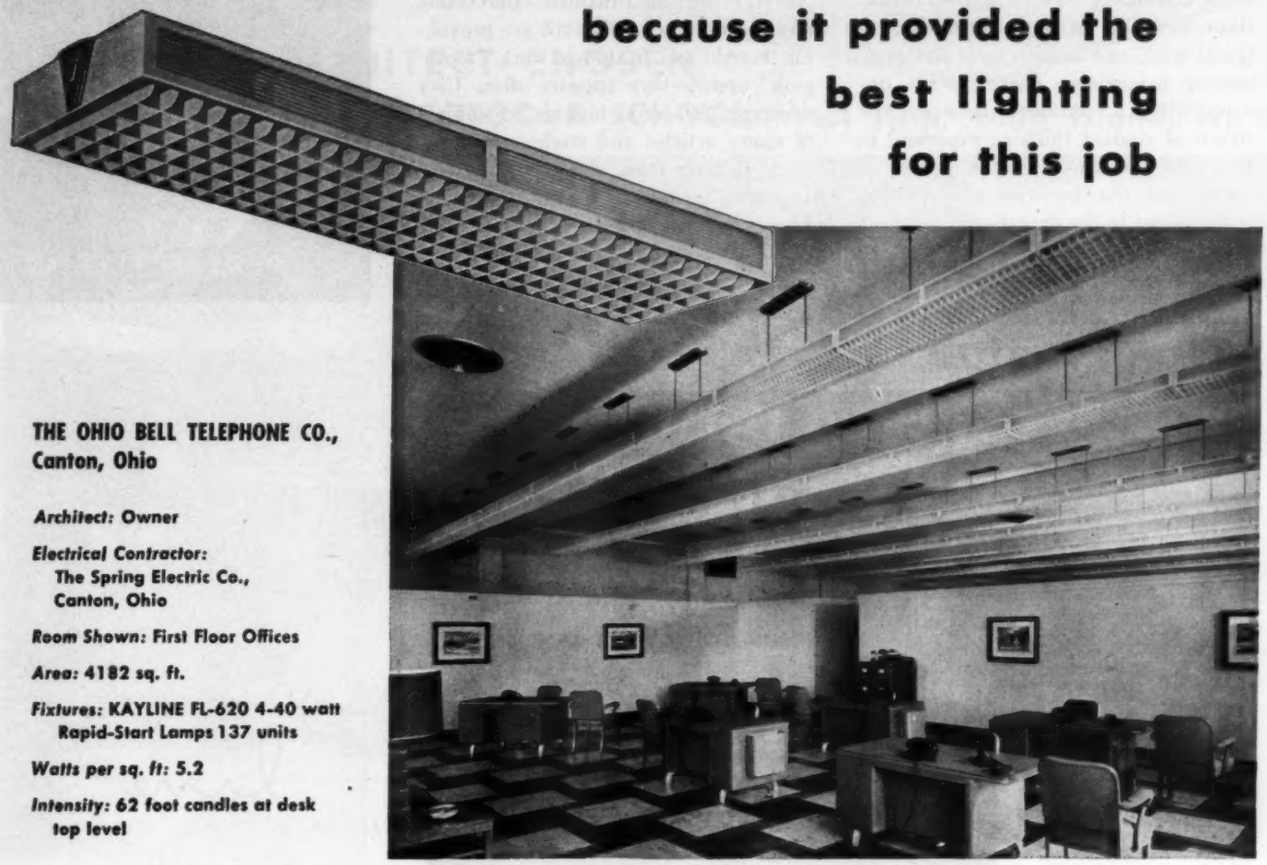
because it provided the best lighting for this job



THE OHIO BELL TELEPHONE CO., Canton, Ohio

Architect: **Owner**

Electrical Contractor: **The Spring Electric Co., Canton, Ohio**

Room Shown: **First Floor Offices**

Area: **4182 sq. ft.**

Fixtures: **KAYLINE FL-620 4-40 watt Rapid-Start Lamps 137 units**

Watts per sq. ft: **5.2**

Intensity: **62 foot candles at desk top level**

KAYLINE

architectural lighting

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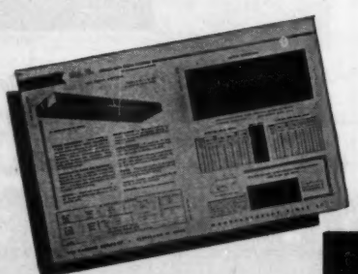
If you feel that lighting is one of the most important requirements on every job — then KAYLINE is the kind of supplier you want. We value human eyesight, we design lighting to protect it — as a result, we are interested in working with architects who think lighting is an important problem. We would like to send you our catalog No. 55 which shows the complete line fluorescent, incandescent and slimline fixtures and gives information and charts on footcandles of light, light patterns, installation suggestions and other important data.



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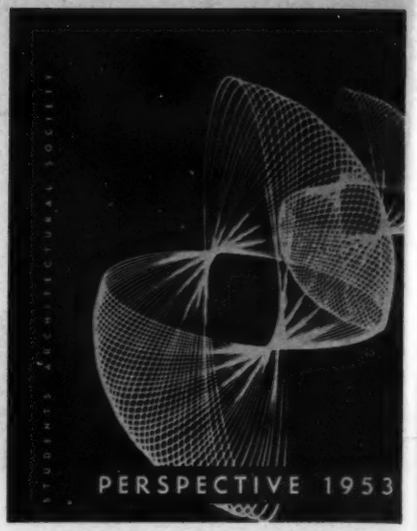
RECENT PERIODICALS

(*Continued from page 352*)

pages, fall roughly into three categories: those containing mostly student work, those including mostly selected professional work, and architectural and engineering magazines. There is, not unexpectedly, a corollary between the trends of student thinking expressed in the collective group over a period of issues and the faculties and visiting critics listed in the magazines.

Articles on space framing seem to attract much study. The work of Nervi, Fuller, the Brazilian Atilio Gallo, and the French Le Ricolais are provoking thought and, in student work, "toothpick" architecture appears often. City planning also ranks high as the subject of many articles and student projects. And, judging from these publications, Japanese art and architecture, Frank Lloyd Wright and Le Corbusier still wield a heavy influence on students.



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Costs DOWN 33⅓%

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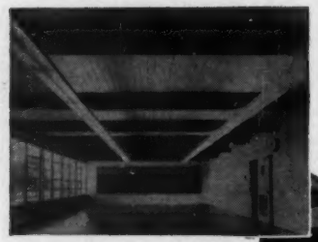
Reelsville, Indiana School Built for $9.55 per sq. ft.



Classroom, Reelsville School

Exterior view, Reelsville School, Reelsville, Indiana

Architects — Wayne M. Weber & John A. Curry, Terre Haute, Indiana
Contractor — M. E. Rilenge Construction Co., Terre Haute, Indiana

With costs, appearance and safety as major considerations, the architect, thoroughly familiar with all types of roof framing, chose laminated wood beams and wood deck for this unusually attractive and practical structure.

SAVINGS—resulted as planned. The architect reports the 25,300 sq. ft. school cost $241,714.00 or $9.55 per sq. ft.—low for the area. Accurately fabricated beams, delivered when needed, helped to keep erection costs one third less than structures using other materials.

ENGINEERING—in accordance with the best industry practice, was made available to the architect. Structurally dependable beams were designed and complete shop drawings were furnished by Rilco. Beams were delivered, cut and drilled to exact specifications, ready for erection.

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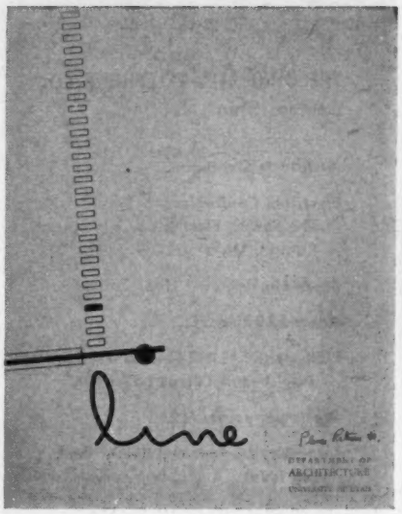
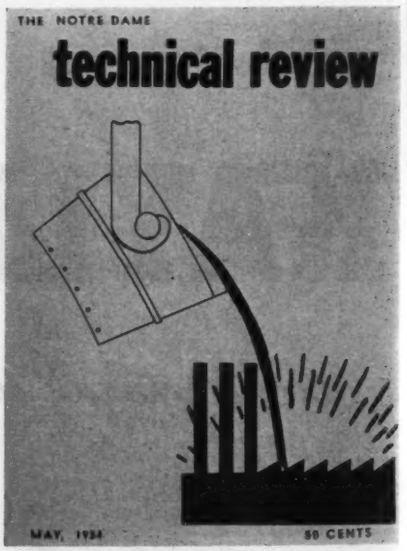
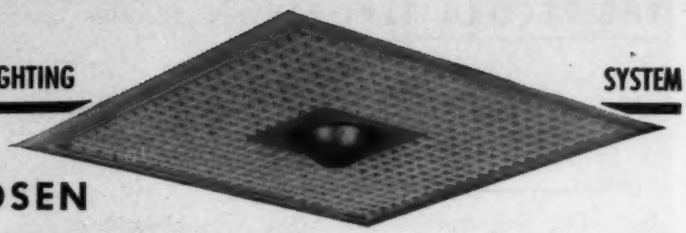




Above: PERSPECTIVE—U. of Manitoba; 8½ in. by 11 in.; monthly; 50 pp.; letterpress; halftones; ads. Center: LINE—U. of Utah; 8½ in. by 10¾ in.; offset; halftones; ads; 50¢. Bottom: TECHNICAL REVIEW—Notre Dame; 8½ in. by 11½ in.; quarterly; approx. 50 pp.; letterpress; halftones; ads; 50¢

Skylike

THE INCANDESCENT LIGHTING SYSTEM



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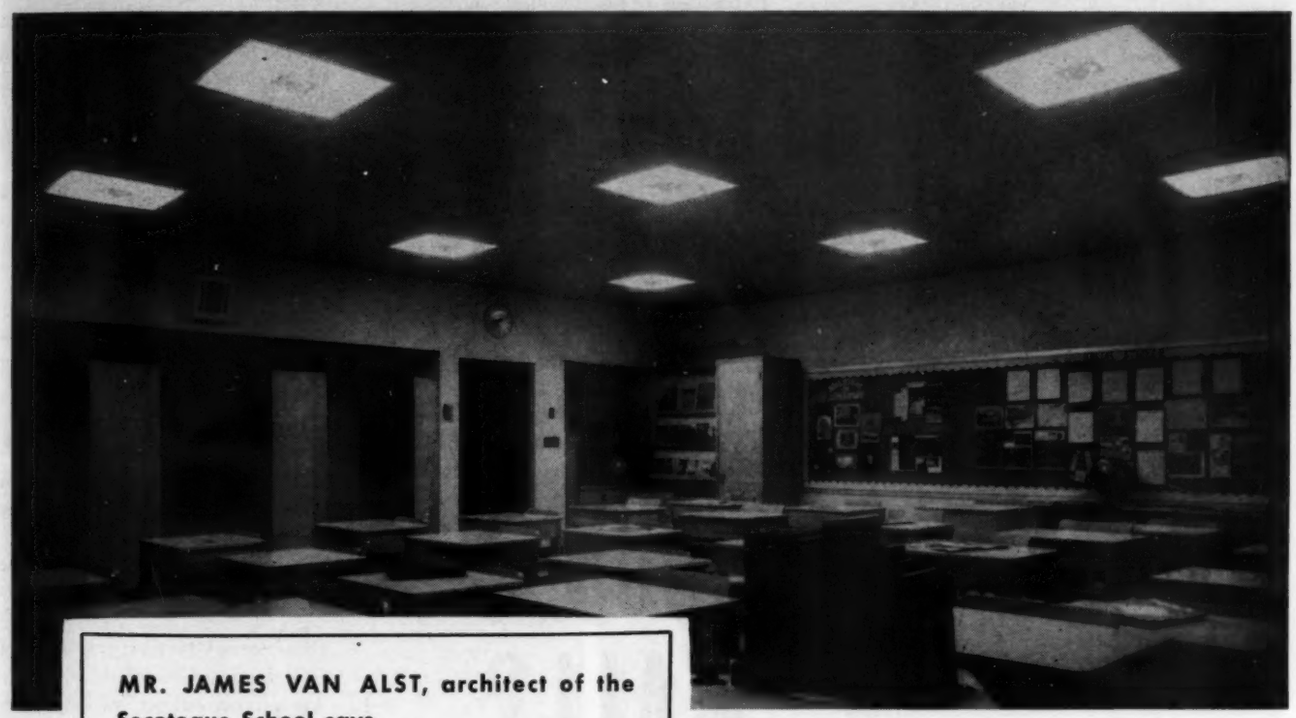

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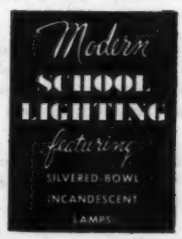

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THE RECORD REPORTS

(*Continued from page 342*)

ON THE CALENDAR

April

1–2 The 75th Annual Convention, Michigan Engineering Society — The Cranbrook School, Bloomfield Hills, Mich.

2–6 Regional convention, American Association of School Administrators — Cleveland

4–5 Judgment of American Institute of Architects' 1955 Honor Awards Program — The Octagon, Washington

6–10 World Plastics Fair and Trade Exposition — Los Angeles

12–13 Annual meeting, Steel Joist Institute — The Greenbrier, White Sulphur Springs, W. Va.

12–15 Annual convention and architectural exhibition, National Catholic Educational Association — Atlantic City, N. J.

18–19 Seventh annual National Engineering Conference, American Institute of Steel Construction — Hotel Muehlebach, Kansas City

18–21 Annual meeting, Building Officials Conference of America — Milwaukee

26 Japanese Exhibition House reopens to the public — Museum of Modern Art, 11 W. 53rd St., New York City

27–29 Conference on Nuclear Engineering — Los Angeles

28–30 Regional Conference, Western Mountain District, American Institute of Architects — Camelback Inn, Phoenix, Ariz.

May

1–4 Annual Meeting, Chamber of Commerce of the United States — Washington, D. C.

5–7 Regional conference of the American Institute of Architects' South Atlantic District — Fort Sumter Hotel, Charleston, S. C.

6 Second Annual Conference for Engineers, a review of engineering progress and prospects — Ohio State University, College of Engineering, Columbus

9–13 Annual convention, National Restaurant Association, including architectural and remodeling exhibit — Navy Pier, Chicago

12–14 Automation — Engineering for Tomorrow; a symposium on the application of automation to building design and construction, sponsored by the School of Engineering, Michigan State College — East Lansing, Mich.

16–17 Annual meeting, National Housing Conference — Hotel Statler, Washington, D. C.

16–20 Annual meeting, National Fire Protection Association — Netherlands Plaza Hotel, Cincinnati

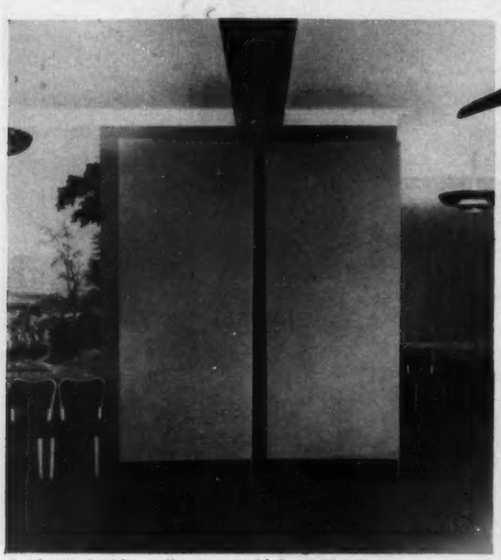
16–20 Material Handling Exposition; theme, "The Concept of Obsolescence" — International Amphitheater, Chicago

18–20 Midyear Division Conference, Porcelain Enamel Institute — Edgewater Beach Hotel, Chicago

22–26 The 48th Annual Meeting of the Air Pollution Control Association — Detroit

25ff Annual Exhibition, Philadelphia Chapter, American Institute of Architects; through June 5 —

(*Continued on page 358*)



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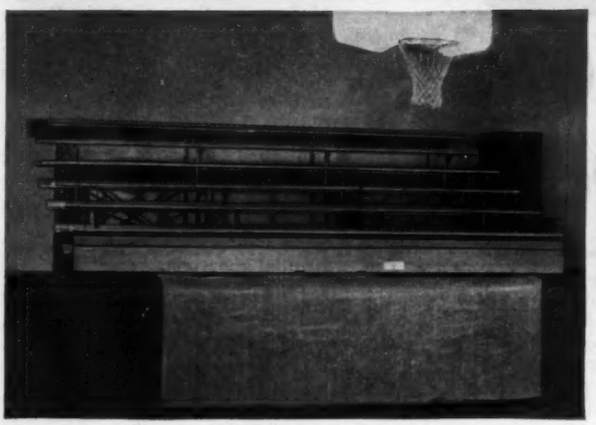

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THE RECORD REPORTS

(*Continued from page 356*)

Philadelphia Art Alliance, 251 S. 18th St., Philadelphia

30ff American Hospital Association Hospital Planning Institute and Workshop; through June 3 — Shamrock Hotel, Houston

30ff Canadian International Trade Fair; through June 10 — Exhibition Park, Toronto

Postponed until 1956: Third Basic Materials Exposition and Conference, to include as well design engineering — Convention Hall, Philadelphia

June

III Biennial of the Museum of Modern Art of São Paulo; through October — São Paulo

8–10 Third Annual Welding Show, sponsored by American Welding Society — Kansas City

8–11 The 1955 British Architects' Conference — Harrogate, England. For program: C. D. Spragg, Secretary, Royal Institute of British Architects, 66 Portland Place, London W. 1

8–18 Conference of International Organization for Standardization — Stockholm

10 Opening of International exhibition of architecture and allied arts — Helsingborg, Sweden

13–18 International Design Conference — Aspen Institute, Aspen, Colo.

19ff Second annual material handling training conference; through July 2 — Lake Placid, N. Y. For information: James R. Bright, Director, c/o Harvard Business School, Boston 63

20–23 National Convention, Forest Products Research Society — Seattle

20–24 The 63rd Annual Meeting, American Society for Engineering Education — Pennsylvania State University, State College, Pa.

20–24 The 87th Annual Convention, American Institute of Architects — Hotel Radisson, Minneapolis

22–25 National Conference on Instruction in Landscape Architecture — Allerton Park (country conference center of the University of Illinois), Monticello, Ill.

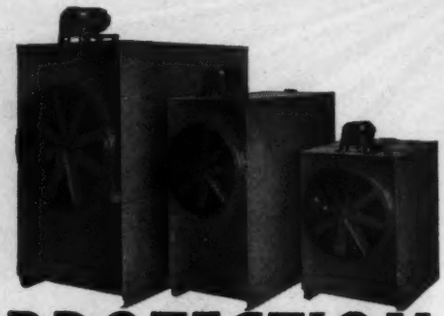
26ff Annual meeting, American Society for Testing Materials; through July 1 — Chalfonte-Haddon Hall, Atlantic City, N. J.

27–29 First Annual Meeting and Technical Conference, American Nuclear Society — Pennsylvania State University, State College, Pa.

27ff Summer General Meeting, American Institute of Electrical Engineers; through July 1 — New Ocean House, Swampscott, Mass.

28ff Built in Latin America: an exhibition of examples of 20th century Latin American architecture selected by Henry-Russell Hitchcock and photographed by Rosalie Thorne McKenna; through Sept. 5 — Museum of Modern Art, 11 W. 53rd St., New York City

HALSTEAD & MITCHELL COOLING TOWERS



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OFFICE NOTES

Offices Opened

• J. Robert Bence & George Stein, Architects, have announced the opening of

(*Continued on page 360*)

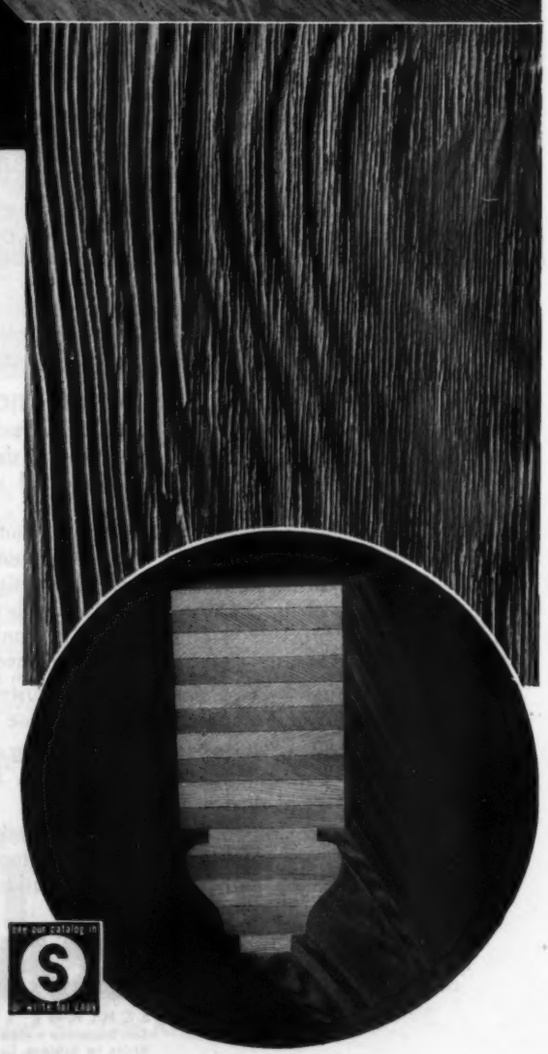
first with the New and Different

in Engineered Timber Construction

New surface textures... new applications... new and better production techniques — these are innovations of Timber Structures, Inc. that give added distinctiveness and value. They are vital to our operations as America's largest and most experienced laminators and fabricators of structural timbers.

Shown here are two typical examples — a wire brushed surface and a timber arch with moulded soffit. The wire brush texture was produced by a giant planer that surfaces both sides of the timber at the same time — the only such planer in existence. The soffit of the arch was moulded *after* the arch was laminated and surfaced, providing the added effectiveness without the slow, costly hand labor formerly required for less beautiful results.

Being first with the new and different is only part of what we mean by pioneering in "Engineering in Wood". The other part is developing equipment and methods that insure fast delivery and moderate prices. The pay-off of this pioneering is closer cooperation with—and greater values for—the entire construction industry.



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TIMBER STRUCTURES, INC. OF CALIFORNIA • Richmond, California

Local Representatives throughout the United States and Canada

(*Continued from page 358*)

their offices in Casper, Wyo.; mailing address is P. O. Box 604.

• John Ebinger, Architect, has opened offices at 130 E. Jefferson, Kirkwood 22, Mo.

• W. Emil Forman, Architect, has announced the establishment of his new offices at 1315 Chemical Bldg., 721 Olive St., St. Louis 1, Mo.

• Terrell R. Harper, A.I.A., and Harris A. Kemp, A.I.A., have formed a partnership to be known as Harper & Kemp, Architects. Offices are located at 710–712 Thomas Bldg., Dallas 2, Texas.

• Robert L. Rowland, Architect, formerly with the firm of John E. Somerville of Green Bay and Weiler and Strang of Madison, has opened his own offices at 633 Pine St., Green Bay, Wis., and at 14 Mead-Witter Bldg., Wisconsin Rapids, Wis.

• Harold Field Kellogg Jr., A.I.A., announces that he has opened offices at 129 E. 74th St., New York 21, N. Y.

• Benjamin Stein, Architect, formerly associated with the firm of Freeman-French-Freeman of Burlington, Vt., has announced the opening of his offices at 215 College St., Burlington, Vt.

Firm Changes

• Benham Engineering Company, of Oklahoma City, has announced the affiliation of John Carney as associate engineer with the firm; Mr. Carney is a highway engineer.

• George F. Klein Jr. has announced his association with the architectural firm of Hammel and Green at 186 N. Fairview Ave., St. Paul, Minn.

• The Office of Alfred Easton Poor, Architects, announces that Philip M. Grennan, engineer, has joined the firm as an associate; offices are at 787 Fifth Ave., New York 22, N. Y.

• Toombs, Amisano & Wells, Architects, is the new name of the firm formerly known as Toombs and Company. Members of the firm are Henry J. Toombs, F.A.I.A., Joseph Amisano, A.I.A., James Edwin Wells, A.I.A., and L. Dale Zent; offices are at 70 Fairlie St., N.W., Atlanta 3, Ga.

New Addresses

Warren H. Ashley, A.I.A., 967 Farmington Rd., West Hartford, Conn.

Kapenekas and Montalto, Architects, 1701 State Rd., Cuyahoga Falls, Ohio.

LaPierre, Litchfield & Partners (Alfred Hopkins & Associates), Architects, 292 Madison Avenue, New York 17, N. Y.

Robert E. Rasche, A.I.A., 601 W. Capitol Dr., Milwaukee 12, Wis.

The Office of Reichl & Starkman, 1022 S. La Cienaga, Los Angeles 35, Cal.

Irving S. Saunders, A.I.A., 921 Port Washington Blvd., Port Washington, N. Y.

Erland Sirén, A.I.A., 740 Hyde St., San Francisco 9, Cal.

Raymond B. Spencer & Associates, 525 Falls Bldg., 22 N. Front St., Memphis, Tenn.

William C. Ullrich, A.I.A., 1870 Hillhurst Ave., Los Angeles 27, Cal.

(*More news on page 362*)

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Perlite-concrete design

LIGHTWEIGHT INSULATING FIREPROOF CONCRETE ROOF DECK SPECIFICATION MANUAL—By Dale A. Lehr, 218 pp. Perlite Division, Great Lakes Carbon Corp., 612 So. Flower St., Los Angeles 17, Calif. Limited free distribution.

Building designers will find very useful this new manual on perlite concrete for roof decks, in which, for the first time is taken an authoritative and sound engineering approach to a subject of growing importance. The book contains numerous tables and diagrams of roof construction that simplify design. A looseleaf binder enables supplementary information to be added later, when available.

Perlite aggregate, formed by "popping" a siliceous volcanic rock at 1,500 F, weighs less than one-tenth as much as sand or gravel. It can be used alone as a non-structural insulation fill or mixed with portland cement and water to form a lightweight structural concrete of high insulative value. The book presents data for both types of application.

Design tables in the manual enable a designer to pick out the thickness of roof deck required for various mixes to obtain a desired overall insulation value. The compressive strength of the slab also is given, thus enabling the designer to check the thickness for load-carrying capacity.

The tables give coefficients of heat transfer (U-values) for slabs on permanent forms of various types, on metal lath and on paper-backed wire mesh. The effect of ceilings is taken into account. Accompanying drawings show details of the various types of construction.

Also included in the manual are typical specifications and recommendations for mixing, handling and testing perlite concrete, technical data for subpurlins and a discussion of commonly encountered problems, with suggestions for avoiding or correcting them.

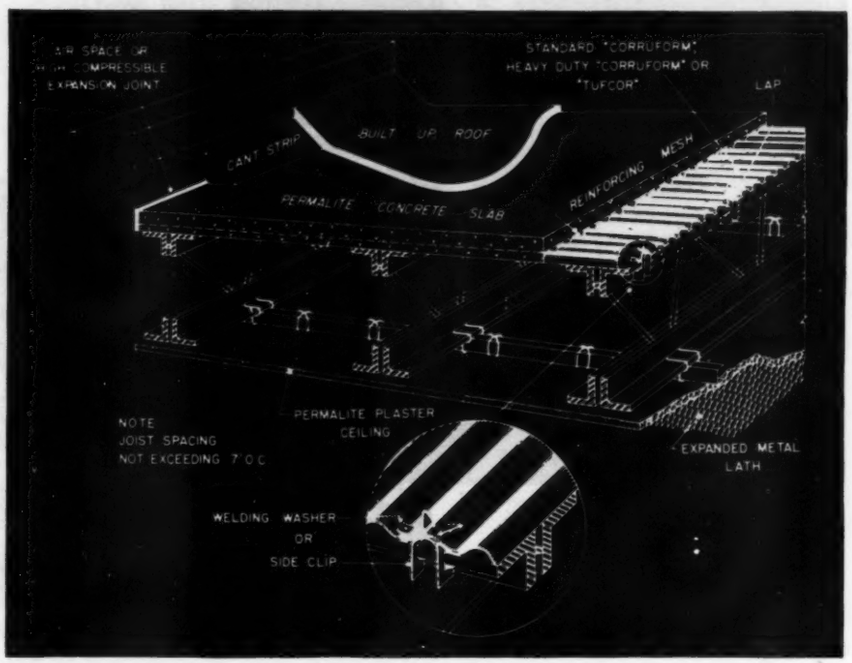
"Engineering News-Record" 6/29/54

This Solid Engineering Information Can Save You Hours on Every Job. *Don't Delay—Write Today* for Information on How to Get Your Copy of the Permalite Roof Deck Manual!

Get this new complete data on

Lightweight Insulating Concrete Roof Deck Construction

to save you time and make your work easier!



The big, new Permalite Roof Deck Manual gives you, for the first time, *complete, factual, reliable data* on the use of lightweight, insulating concrete in open-web roof deck construction. Leading architects and designers agree that this 220-page volume provides complete engineering information in easy-to-use form . . . all the different roof forms and types of suspended ceilings, with page after page of tables on slab thickness, weights, strengths and U-factors, already worked out for you to make specifying quick, easy and accurate. You can get this authoritative handbook, packed with usable, every-day working information, from the Permalite franchisee serving your area — for his name and address

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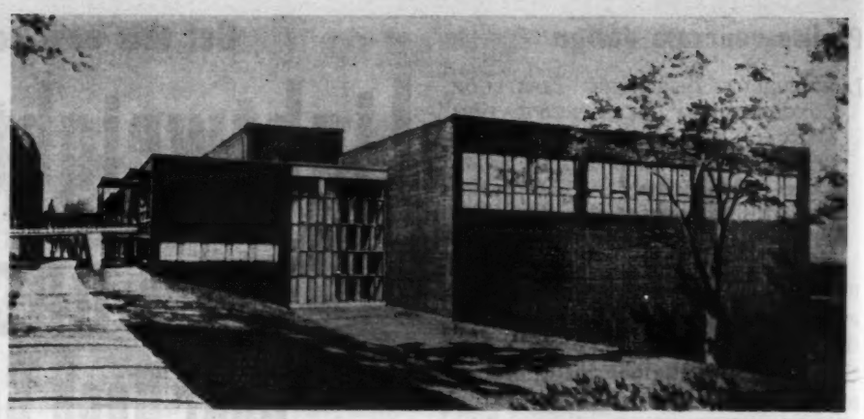
THE RECORD REPORTS

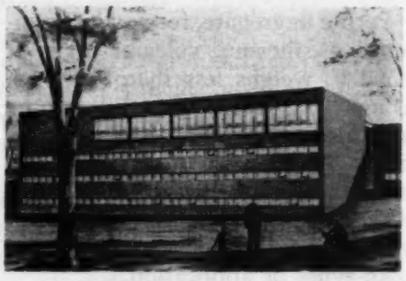
(*Continued from page 360*)

LIBRARY GETS UNDER WAY AT CARLETON COLLEGE

Construction on a new library to house Carleton College's 90,000 volume collection, now scattered in various buildings around the Northfield, Minn., campus, got under way last September, and should be completed sometime this year.



Above: east façade and entrance to library planned by Carleton College. Below: windows utilize north light to illuminate stacks and carrels



Designed to serve a maximum of 1000 students, the building will provide, in addition to regular study areas, 100 carrels in the open stacks. For the three stories given over to stacks, the floors will be of uniform strength to insure flexibility of arrangement.

The new library, according to the college, will be able to handle 50 to 70 years' growth in the school's collection; after that time additions can be made if they are required. The estimated cost of the building is $1.5 million.

The architects are the Minneapolis firm of Magney, Tusler and Setter.

(*More news on page 366*)

The Scoville Memorial Library, which will be replaced by the new building, has been in use since 1896

One of the three science rooms equipped with WOOD-METAL cabinets and furniture in West Charlotte High School. Graves & Toy Architects.

WOOD-METAL

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Monel Swivel Disc

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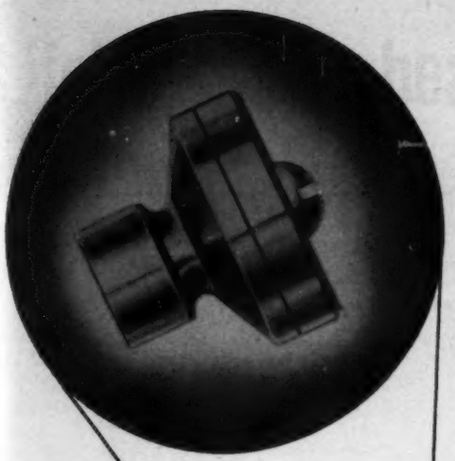

This exclusive Monel Swivel Disc is found in every Speakman COMMANDER Valve. It is made of Monel because years of dependable operation have proved that Monel gives complete protection against the corrosive action of all types of mineral waters.

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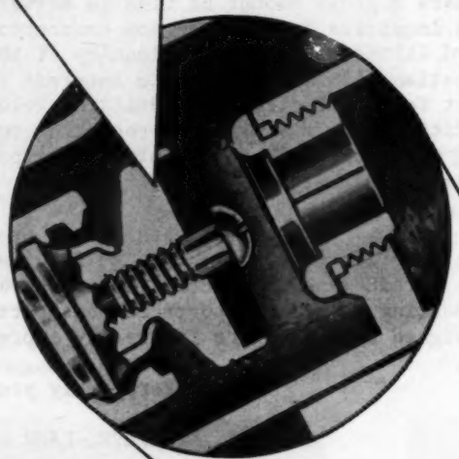

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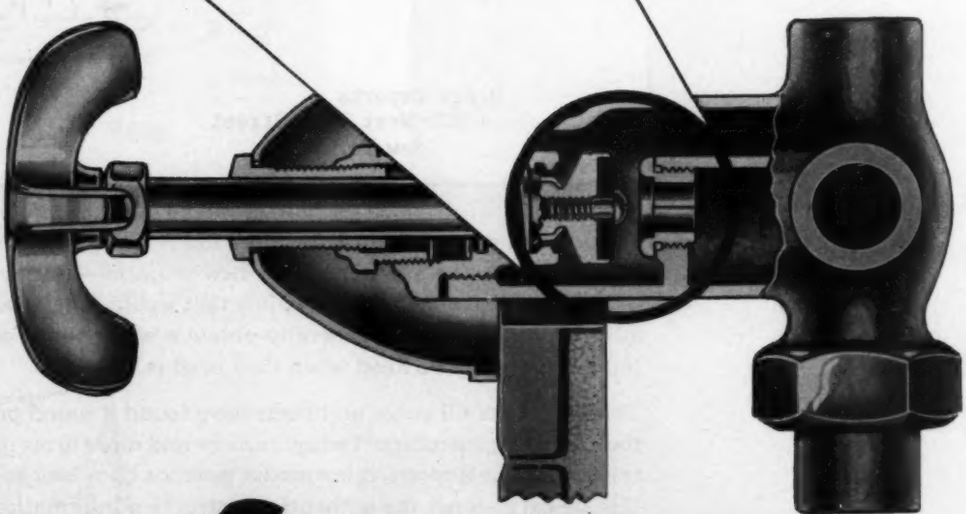

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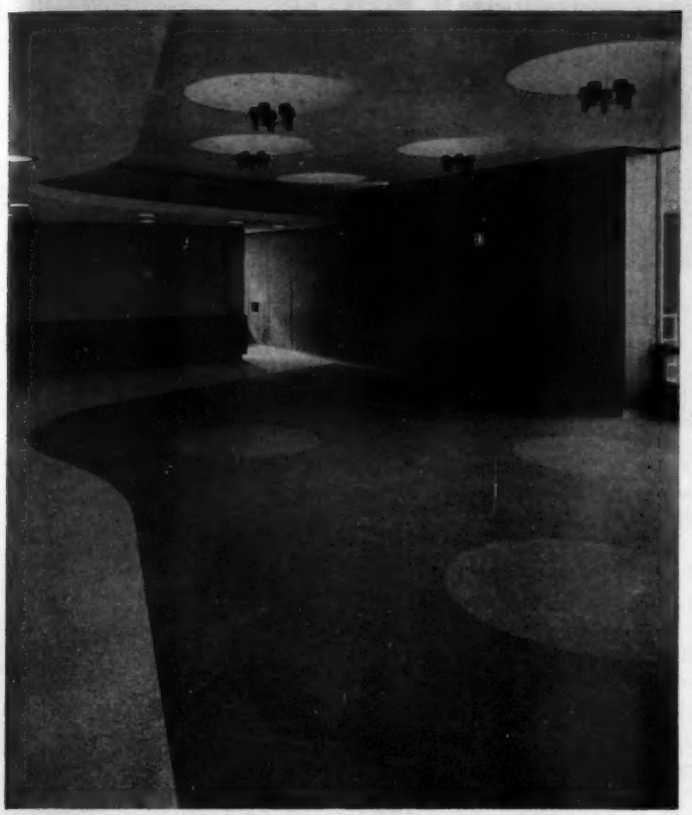

EASY-TO-CLEAN TERRAZZO pays dividends with less maintenance. Philadelphia General Hospital. Architects & Engineers: Gilboy & O'Malley —Alfred Claus, Architect-Partner; General Contr.: McCloskey & Co.; *Terrazzo* by United Marble Co., Philadelphia, Pa.

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For more information, see SWEET'S Catalog, Section 12g/Un and 3d/Un, or write Atlas White Bureau, Universal Atlas Cement Company (United States Steel Corporation Subsidiary), 100 Park Avenue, New York 17, N. Y.

TIME-PROOF TERRAZZO withstands heavy foot traffic . . . stays new-looking for the life of the building. Transfiguration Parochial School, Philadelphia, Pa. *Terrazzo* by Belfi Bros. & Co., Philadelphia.

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AR-WCT-83

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THE RECORD REPORTS

(*Continued from page 362*)

New chapter officers, left to right: Thomas K. FitzPatrick, vice president; Henry B. Boynton, president; Herbert L. Smith III, treasurer; and Carl M. Lindner Jr., secretary

VIRGINIA A.I.A. CHAPTER HAS ITS ANNUAL MEETING

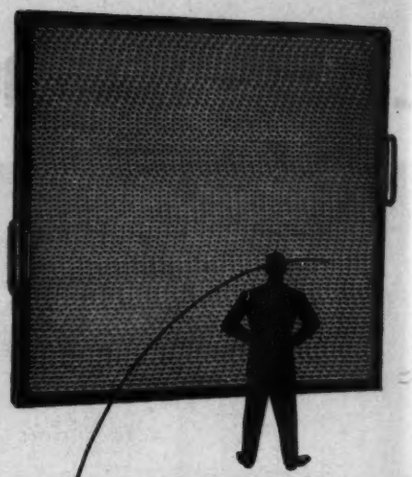
Convening in Charlottesville at the end of February, the Virginia Chapter of the American Institute of Architects dedicated its annual meeting to "Architecture in the New South."

Among the speakers were designer Dan Cooper of New York, who talked of textiles and interior design, and architect Karl Kamrath of Houston, who reported observations of architecture made on a recent trip through Germany and Western Europe, and who spoke also of recent architectural developments in Texas. Other speakers included Robert Newman, professor at Massachusetts Institute of Technology, who talked about acoustics in architecture, and Bernard Tomson, New York attorney.

Delegates heard an announcement of plans for a Virginia Chapter magazine, the first issue of which is scheduled to appear in April, and voted to proceed with plans for the Second Annual Virginia Competition, scheduled for the spring chapter meeting in Williamsburg, June 17–18.

(*More news on page 370*)

Dan Cooper (left), a speaker at the convention, talks with architect E. Tucker Carlton of Richmond



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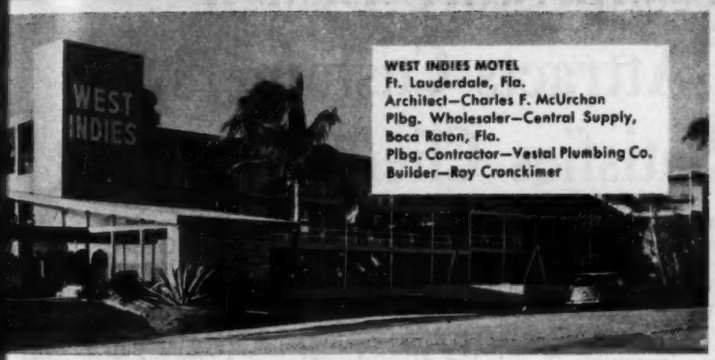

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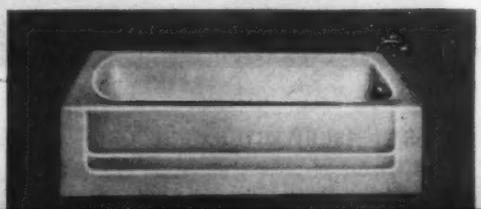
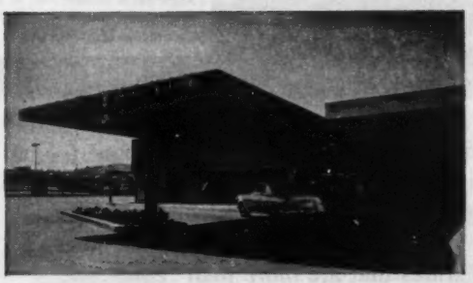


Successful Store Design That Attracts Customers and Satisfies Clients

With the return of a buyer's market in most lines of merchandise, good architectural design now plays a prominent role in the commercial success of retail shops and stores, as well as wholesale showrooms. Clients no longer can accept architecture that is merely "attractive"; they demand, and expect to get, architecture shrewdly planned to lure shoppers and convert them into customers.

Thus the store architect must add to his purely creative sense of good design a keen sense of salesmanship. To help him do so, the editors of Architectural Record have published:



DESIGN FOR MODERN MERCHANDISING

Stores, Shopping Centers and Showrooms

Reprinted from recent issues of the *Record*, here are scores of shops and stores whose obvious eye-appeal is matched by their proven sales appeal. The editors present them in scores of fine photographs and drawings that make clear how every element—store front, interior casework, floor levels, lighting, etc.—enhances sales magnetism. They show, for example, why the "open front" rates so high in sales appeal . . . interior layouts that keep customer traffic flowing smoothly . . . when, where, and how to use color as a selling influence . . . how to segregate "impulse" from "demand" merchandise . . . clever uses of partitions and baffle walls in smaller stores . . . why parking areas must be geared to volume of trade, not the size of the store . . . the importance of customer-comfort services such as air conditioning, sanitary facilities, and the like.

As "consultants" on this book, the editors have called on America's leading store architects—men like Victor Gruen, Morris Ketchum, and Caleb Hornbostel—to offer their counsel on various aspects of successful store planning. Their words constitute the best available advice on design techniques that add up to good business, as well as good architecture. Order your personal copy of this book by mailing the coupon below.

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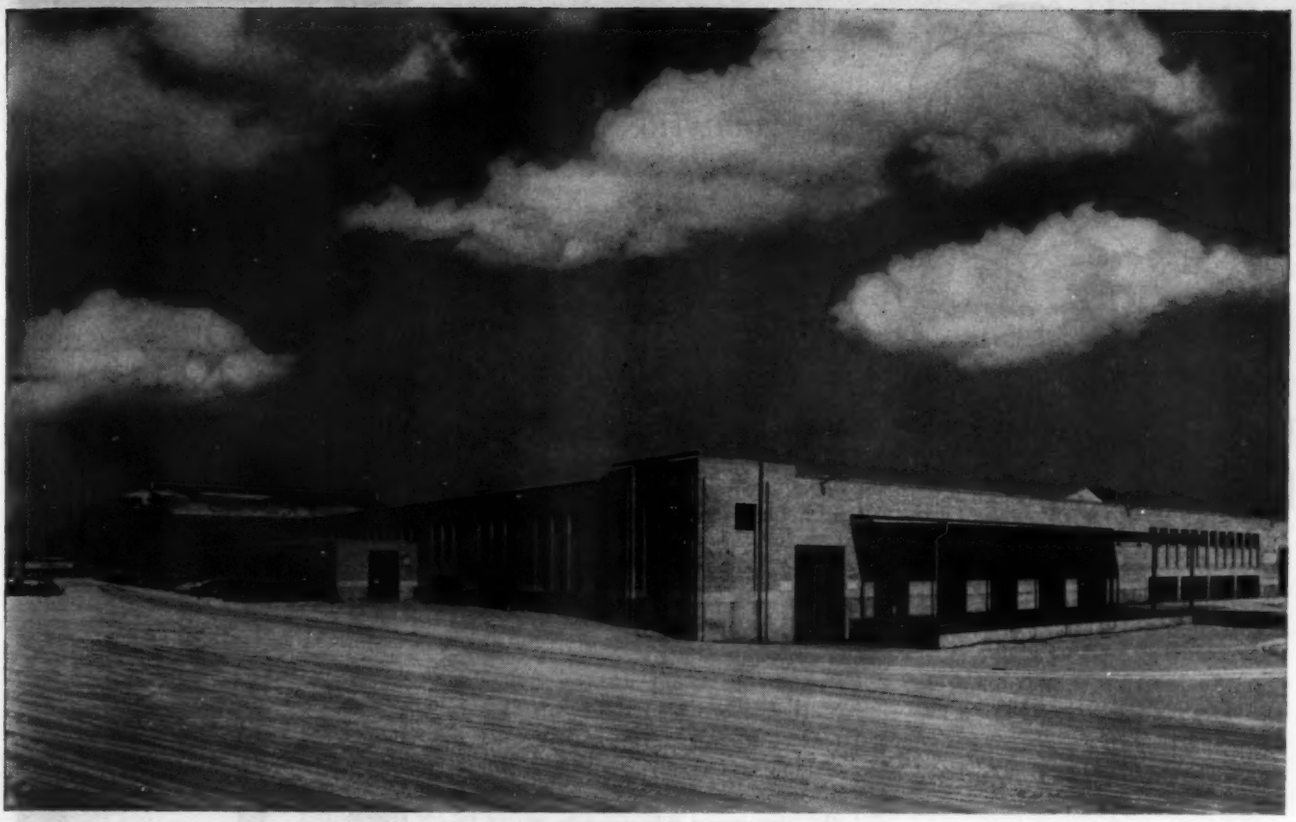

New addition to Chicago's International Amphitheater, designed by A. Epstein and Sons, Inc., architects and engineers. Poirot Construction Co. was general contractor and Allied Structural Steel Co. (Midland Structural Steel Co. Division) was steel fabricator—all of Chicago.

LONGSPANS PROVIDE 2400 SQ FT BAYS IN WORLD'S LARGEST CONVENTION HALL

A 320 by 600 ft addition to Chicago's famous International Amphitheater will increase the exhibition and display space of that building by 192,000 sq ft, making it the world's largest convention and exposition hall.

Huge 20-ft-high doors will permit equipment of this height to move into the new addition. Ceiling headroom inside is 26 ft between trusses and 20 ft beneath them. A depressed railroad track runs 500 ft into the building, enabling exhibitors to unload inside at floor level. After unloading, the track is covered with flooring and used for exhibit space.

In providing for maximum column-free space, the planners of the Amphitheater addition selected Bethlehem Longspan Steel Joists, which permitted a bay size of 60 x 40 ft between columns.

Using Open-Web Steel Joists gave another important advantage to the builders. Steel joists contribute to the fire-resistant construction of the building, which has an exterior of brick and concrete ceiling. In addition, the use of steel joists helped to reduce building costs. The joists reached the job site fully marked, ready for placing, and the installation of ductwork, piping and wiring was simplified by running them through the open-webs.

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THE RECORD REPORTS

(*Continued from page 366*)

EDUCATION NOTES

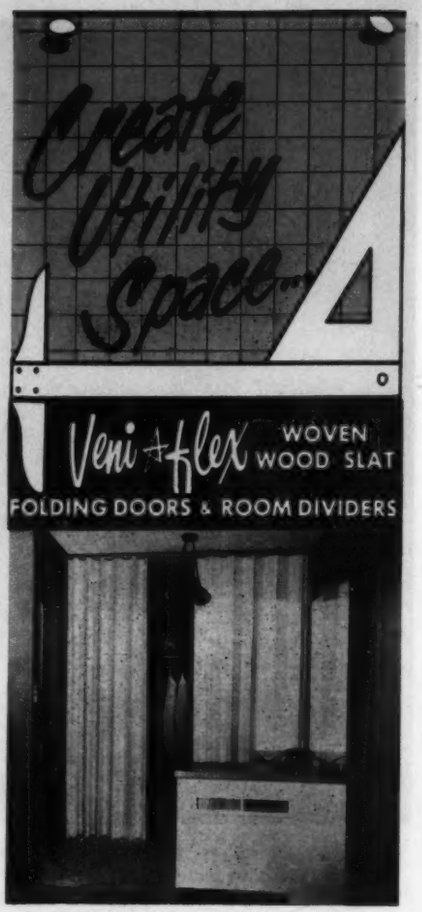
Appointments

Carnegie Institute of Technology has announced the appointment of Associate Professor Raymond A. Fisher as acting head of the architectural department; he succeeds John Knox Shear, now editor-in-chief of ARCHITECTURAL RECORD. . . . At the **University of Michigan,** Robert Iglehart has been appointed professor of art and chairman of the Department of Art in the College of Architecture and Design; he will take up his new duties in the academic year 1955–56. . . . The School of Design at **North Carolina State College** has added to its staff Samuel Rosenberg and Joseph H. Cox, as Associate Professors of Design, and James E. Adams, as Instructor in Architecture. . . . Ian L. McHarg has joined the faculty of the **University of Pennsylvania's** School of Fine Arts as director of the curricula in landscape architecture; the university also announced the appointment of Dr. Grant C. Manson as vice dean of the School of Fine Arts. . . . **The Beaux-Arts Institute of Design** recently elected to office Alonzo W. Clark III, of Voorhees Walker Smith & Smith — chairman; John Gray Faron, of McKim, Mead and White — vice chairman; Arthur S. Douglass Jr., of F. W. Dodge Corporation — secretary; and Thorne Sherwood, of Sherwood, Mills and Smith — treasurer; new trustees of the institute, who will serve for three years, are Giorgio Cavaglieri, Percival Goodman, Joseph Judge and Edward W. Slater.

Scholarships

Applications for the **University of Illinois's** Francis J. Plym Fellowships in Architecture and Architectural Engineering, which provide $1700 for six months travel and study in Europe, were due March 1. . . . The College of Architecture and Design at the **University of Michigan** is offering the $2000 George C. Booth Traveling Fellowship in Architecture to all graduates of the school under 30 years of age; information is available from the Office of the College of Architecture and Design, 207 Architecture Building, Ann Arbor, Mich., and the deadline for applications is May 15. . . . **Illinois Institute of Technology** has received a $6000 scholarship fund established in the memory of the

(*Continued on page 374*)



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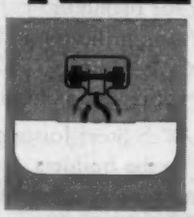

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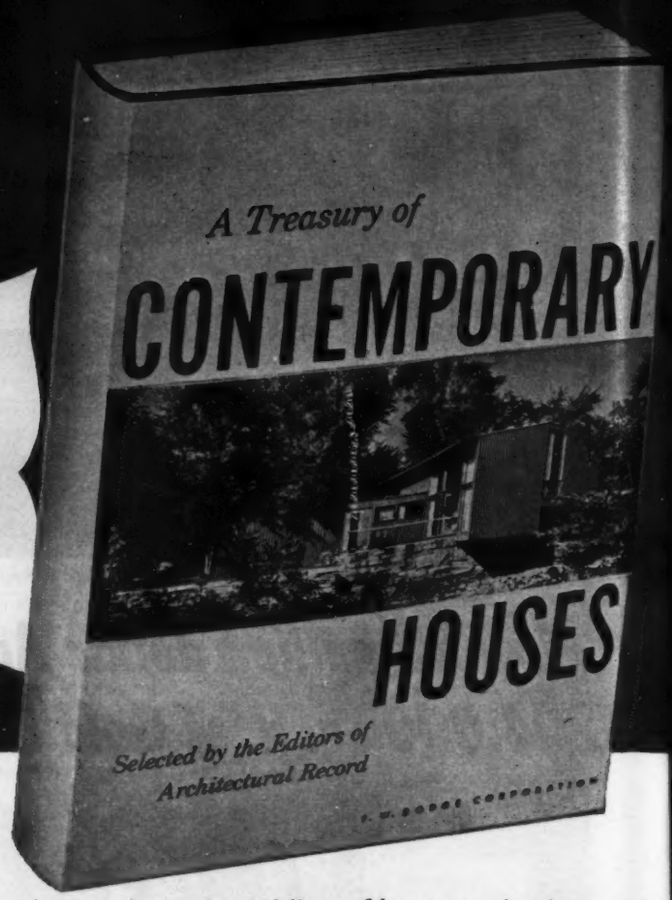

Here, depicted in truly superb photographs and detailed drawings, are fifty houses that meet the most exacting demands of quality architecture. Chosen for publication from among hundreds of candidates, these houses are tributes to their creators and sources of genuine pride and delight to their owners. Most of them are illustrated in at least ten fine photographs of interiors and exteriors, plus skilled drawings of floor plans, plot plans, and intriguing details of design. Explanatory text tells the story of each house, what its owners wanted, and how the architect met and solved the problems confronting him. Here indeed is a treasury of houses rich in ideas and inspiration from the planning boards of some of America's foremost architects and designers.

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To convey the spirit of this book we herewith reprint in its entirety the introduction written by Emerson Goble, managing editor of Architectural Record:

"House design today is in a state of delightful confusion. Confusion because ideas seem to change so rapidly, or maybe because there are so many ideas, so many new things to work with. Delightful because we want our houses to be delightful. You might even say that delight is the current fashion.

"Our forefathers—unnumbered generations of them—might laugh at the idea of delight being a current fashion. The age-old summary of architecture speaks of 'commodity, firmness and delight.' But it is still true that architecture has newly discovered the word, or at least has new visions of its realization.

"It is important to realize that this represents a step forward, not backward. When contemporary architecture, many years ago, began sweeping out the sentimental litter of by-gone styles, it was going forward. It was recognizing that ancient styles, beautiful as they were in their day, were anachronisms in our time. They were merely stage settings. They did not satisfy our intellect, and if they satisfied our emotions, weren't we a little mixed up?

"So architects set about developing an architecture that would satisfy our sharpened intellects. They began developing new forms, new materials and techniques, new esthetics, new combinations of space, new ways to design houses for their purposes.

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"A noteworthy result is variety. And what could be more delightful in house design than variety? Why should a modern house have to have a flat roof? Or a glass wall? Or an open kitchen? Why should it have to have its structure exposed? Why shouldn't it have anything its owners really want, including a curve or two, even a Victorian curve?

"Well, that's where modern architecture is today. That is why, incidentally, there is much variety in the houses in this book. All are modern. All were considered good enough to publish in ARCHITECTURAL RECORD. All are very recent selections. But not all take their academic theory in the same doses. What's more to the point, all have ideas in them, and nowadays there is no dogma, intellectual or otherwise, against using whatever ideas may appeal to you."

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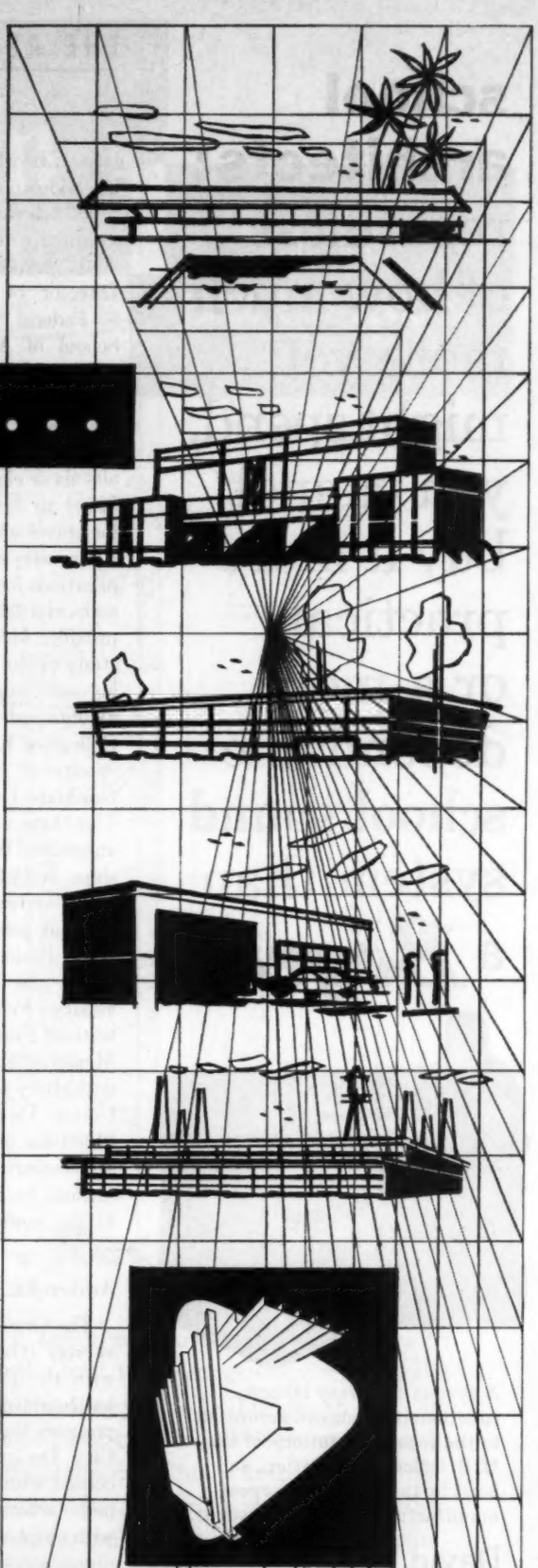

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THE RECORD REPORTS

(*Continued from page 370*)

late B. Leo Steif, Chicago architect, by his widow; the fund will provide two $1000 scholarships for three years, to be awarded to beginning or advanced students; information is available from the Director of Admissions, I.I.T., 3300 S. Federal St., Chicago 16. . . . The School of Architecture at **Columbia University** has announced the increase of the William Kinne Fellows Memorial Fellowship Fund to $652,202.56, which enables the department to grant annually six or eight fellowships ranging from $2500 to $4000 apiece, to be awarded for travel and study abroad. . . . **The University of Illinois** has called for applications for the 24th Kate Neal Kinley memorial fellowship in fine arts, which provides $1300 "for a year of advanced study of the fine arts in this country or abroad"; applications, due May 15, can be obtained from Dean Allen S. Weller, College of Fine and Applied Arts, University of Illinois, Urbana. . . . The Graduate Division of Architecture and Fine Arts at **Cornell University** has announced these fellowships and scholarships available to students in architecture, landscape architecture, city and regional planning, painting and sculpture: Junior Graduate Fellowships — $1400 plus free tuition and fees; University Fellowship — $400 plus free tuition; Francke Huntington Bosworth Memorial Fellowship — $1000 for graduate study of landscape architecture; E. Gorton Davis Memorial Fellowship — $1000 for graduate study of landscape architecture; Tuition Scholarships — free tuition; Assistantships — four awards of $1800; applications due February 19.

Addenda

The Graduate School of **Miami University** (Oxford, Ohio), in conjunction with the Department of Architecture, has established a new one year graduate program leading to the degree Master in City Design; the curriculum is "concerned with the planning and design of large urban areas and building groups with emphasis on the esthetic and three dimensional aspects"; further information can be obtained from Prof. Rudolf Frankel. . . . **Columbia architecture alumni** have been requested to report their changes of address to A. Hausman, Membership Committee, 211 E. 48th St., New York, N. Y.

(*More news on page 378*)

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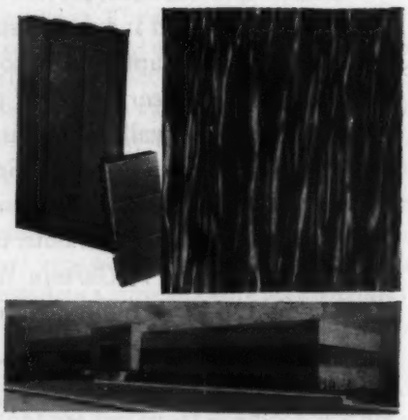

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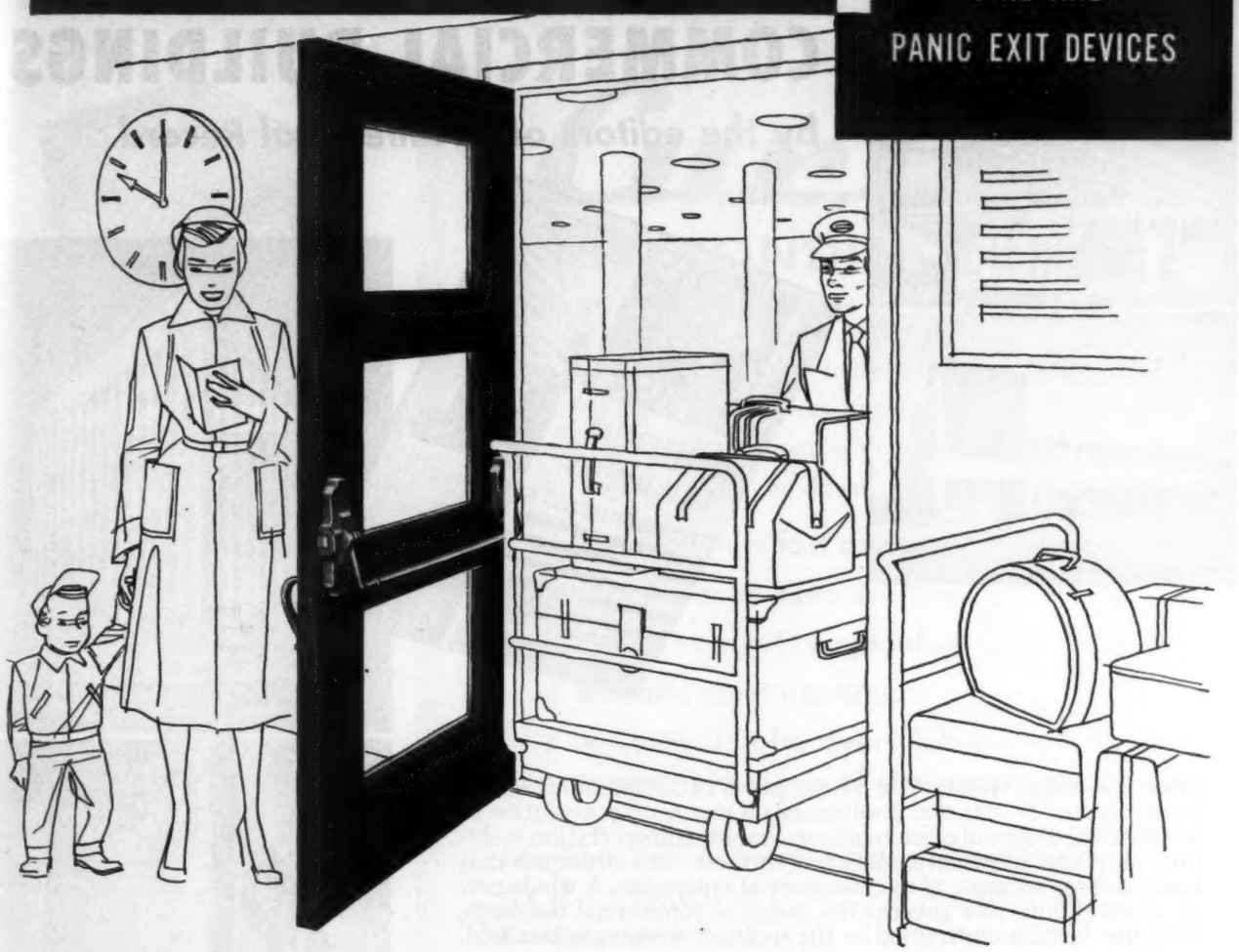

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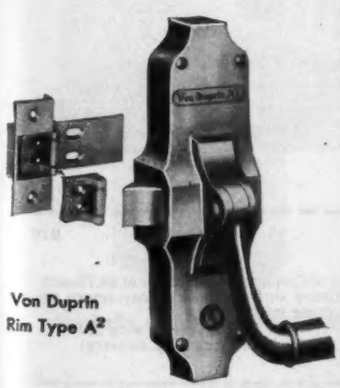

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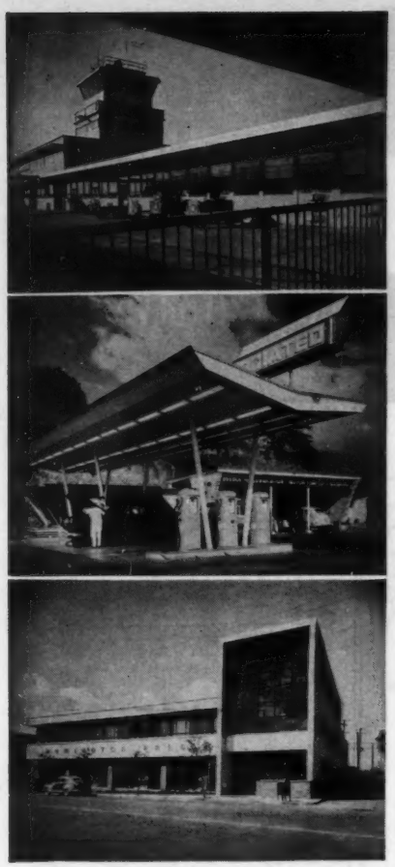

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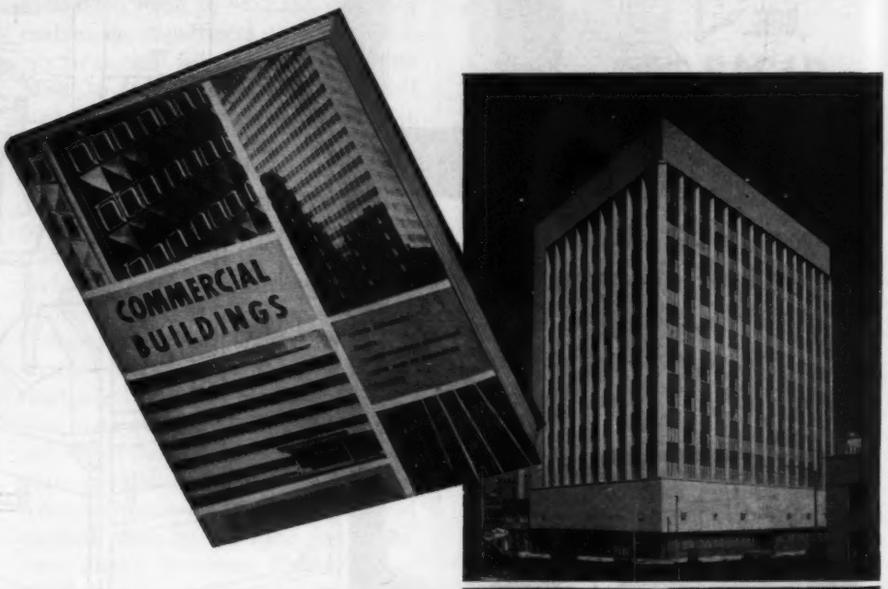

Since the end of World War II the pages of *Architectural Record* have reported in text and photographs a momentous evolution in the physical design of office buildings, banks, transportation buildings, radio and television studios, and theaters—the structures that house a large segment of our commercial enterprise. A whole new set of conditions now governs the design of commercial buildings, and must be fully understood by the architect working in this field.

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- how the movement of business to suburban districts has given the architect space and freedom to experiment with new concepts of design
- how steadily rising costs have favored the choice of contemporary design over the more ornate and expensive traditional styles
- how new materials like lightweight aluminum have altered both the structural frame and the external facades of many buildings
- how the American habit of travel, greatly magnified in recent years, has promoted better design in airport buildings, rail and bus terminals, and roadside service stations
- how our frantic pursuit of entertainment has fostered building activity in radio and TV studios, and theaters for both live plays and films.

Today, these basic social trends are still gathering momentum, and will continue to influence architectural thinking and practice for years to come. For that reason Commercial Buildings is a book of far more than academic interest to the architect; it will serve him as a reference, as a planning manual, and as a source of positive guidance for designing a building that measures up to the highest standards of good architecture.

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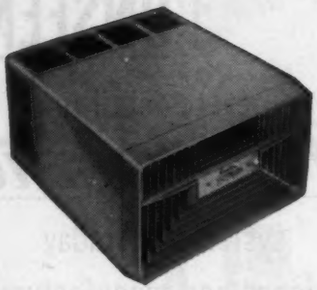

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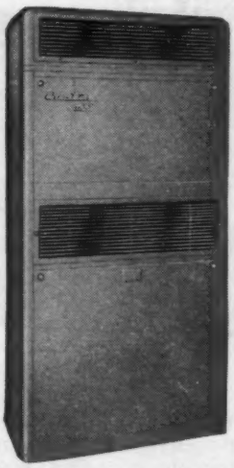

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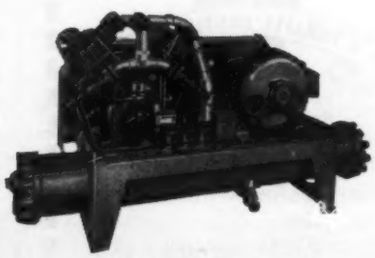

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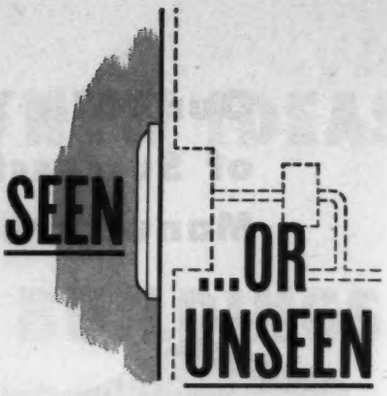
THE RECORD REPORTS

(Continued from page 374)

Acrylic plastic globe recently added to Johnson Wax's Administration and Research Center was in Frank Lloyd Wright's original scheme; it shows locations of Johnson offices around the world

Above: granite globe was designed by architect William B. Ittner for the Clayton High School in Clayton, Mo. Below: aluminum globe on brass base was designed by Edward F. Cordwell Company for new branch of New York's National City Bank; McKim, Mead and White, architects; George A. Fuller Company, builder



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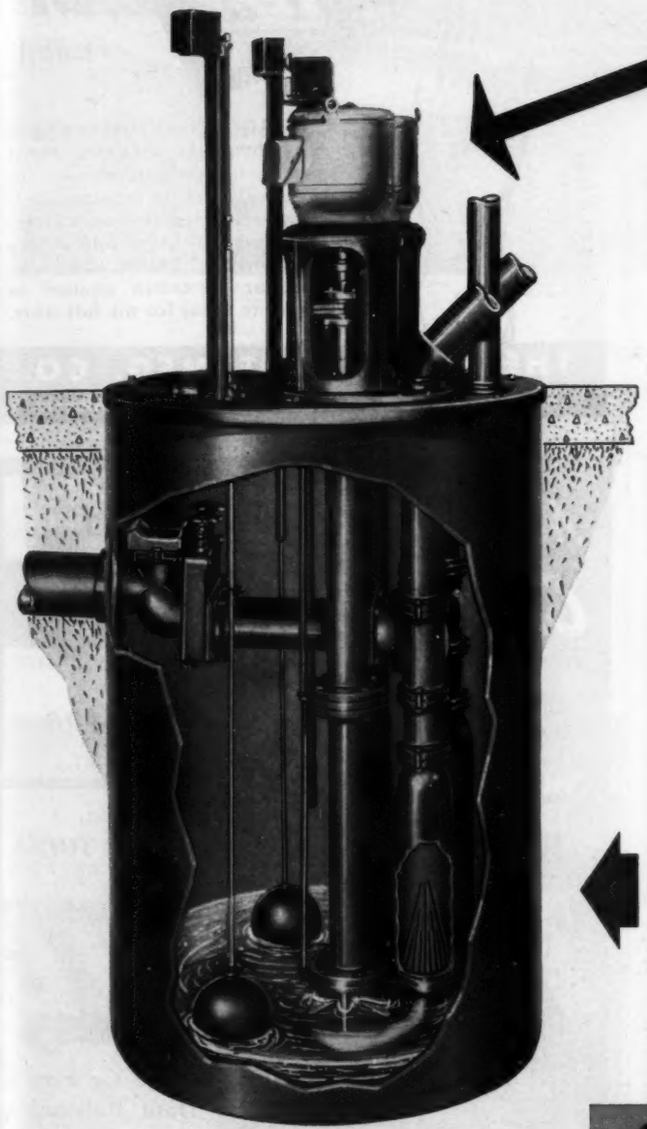

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When the idle pump starts, the coarse sewage matter in the strainer chamber is flushed into the discharge pipe with liquid sewage.

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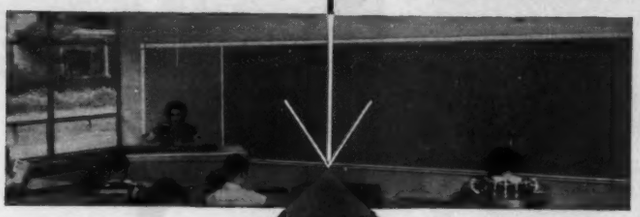

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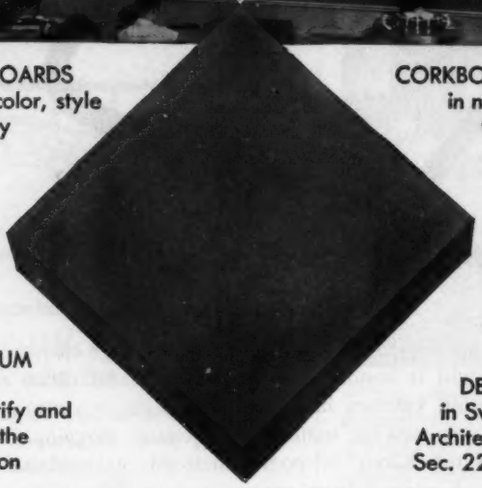

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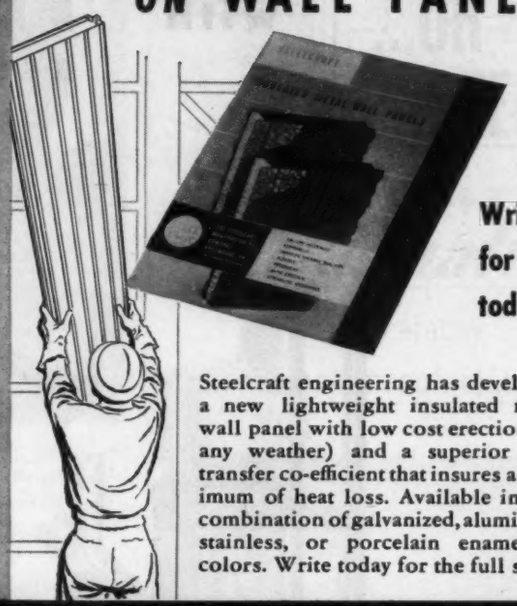

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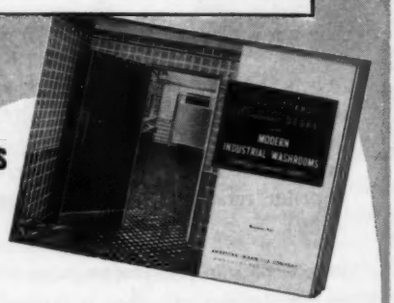

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REQUIRED READING

(*Continued from page 48*)

the effectiveness with which the Japanese have applied unified site planning, orientation, modular method, prefabrication, standardization, simplicity of form and structure, variety in unity and functional planning in many examples of the Japanese house.

In relying on a great number of excellent photographs, the author has made a wise choice. The reproduction in toned plates on matted paper does convey the true sensation of actually examining and understanding the work first hand. It is the examination and understanding of a mature expression and its bases, to keep us conscious of the application of these principles in our own architecture, that makes this a valuable book for the architect and the student in the Western world. **George B. Cash**

JAPANESE ART SERIES

Pageant of Japanese Art — Volume 6, Architecture and Gardens. Edited by the Staff Members of the Tokyo National Museum. Tōto Bunka Co., Ltd. (Tokyo, Japan) 1954. 127 pp, illus. $15

The history of Japanese architecture falls into three eras: the earliest times until the introduction of Buddhism to Japan of which there are no actual examples left; the period from the entering of Buddhism until the Meiji Restoration in 1868; and from 1868 to the present — a period yet to be resolved.

The second era, with which Volume Six of THE PAGEANT OF JAPANESE ARCHITECTURE is concerned, covers about 1300 years from the middle of the sixth century to the middle of the 19th century. In this era continental culture was imported through the medium of Buddhism and gradually assimilated. This was the epoch in which the Japanese evolved their own architectural styles.

The history of the development of Japanese architecture and gardens is described in some detail, illustrated with photographs and line drawings and including a glossary.

The first half of the book contains 50 full page (10 in. by 14½ in.) plates printed on matt paper, some in full color. These photographs alone are well worth the price of this volume.

A word of praise is due to the staff of the Tokyo National Museum and to the Tōto Bunka Publishing Company at the completion of this series. It has

(*Continued on page 386*)

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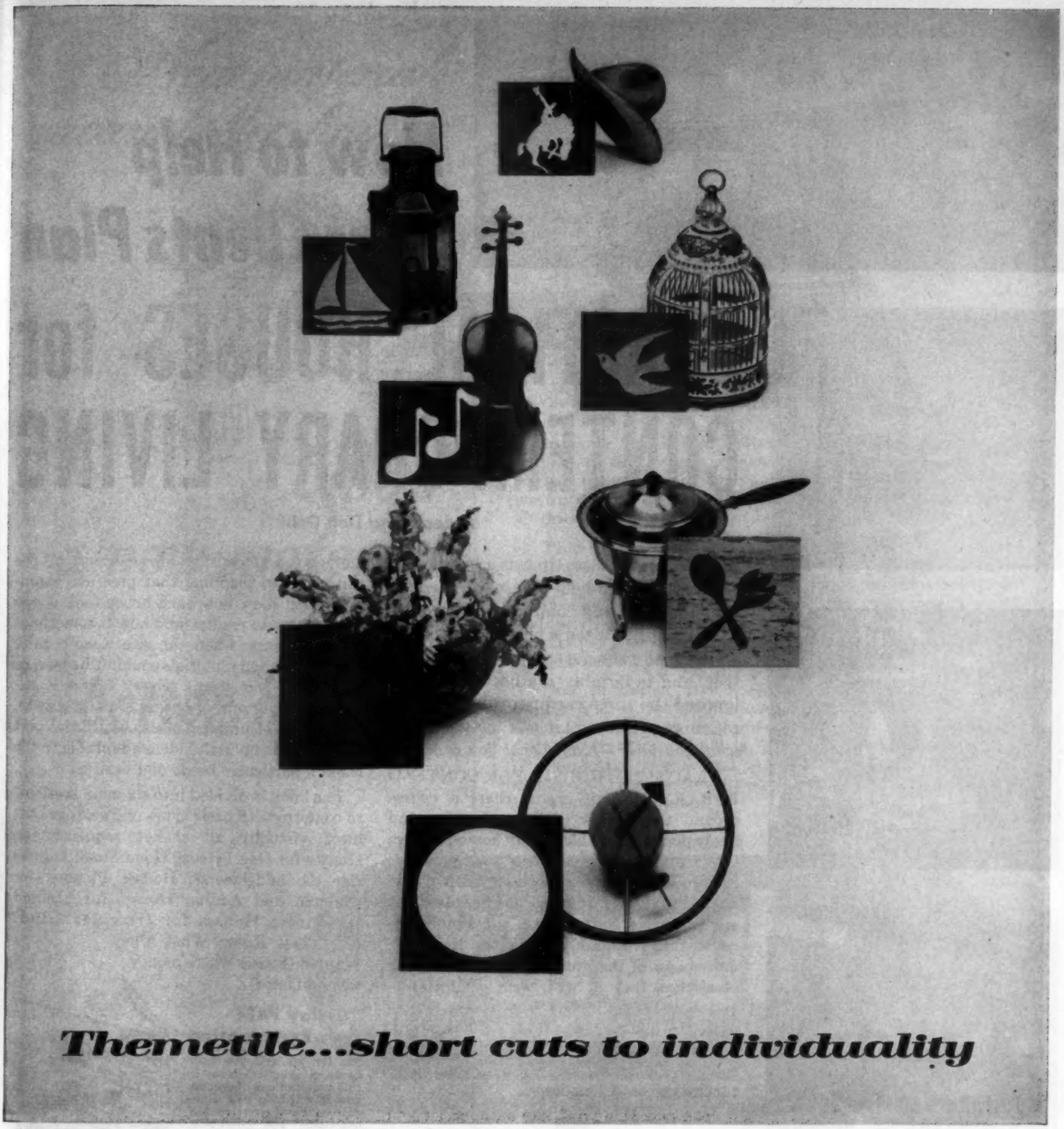

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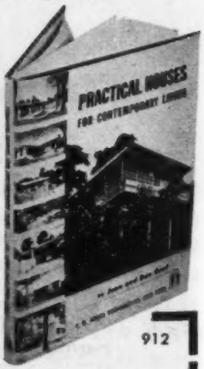

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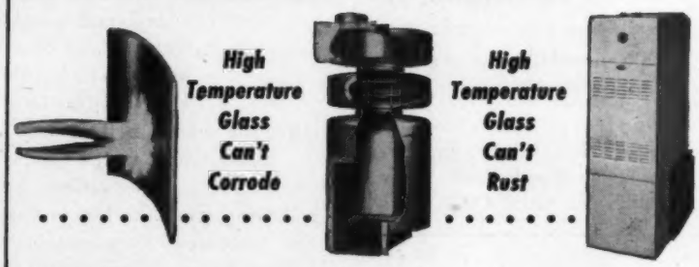

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(*Continued from page 382*)

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THE CAMEROONS

(*Continued from page 46*)

and stone richly imprinted with symbolic designs.

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Their houses and planning are more advanced in design and technique. Although the outer plan remains the basic circular design of the other tribal dwellings, there is an inner, almost square wall. The thatched roof is supported by highly ornamented bamboo posts set in a circle. Several feet within this circle a wall prefabricated on the ground of bamboo posts laced with thongs, is set into place.

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(*Continued on page 390*)

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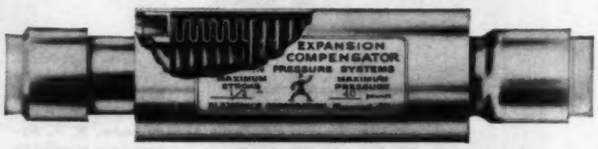

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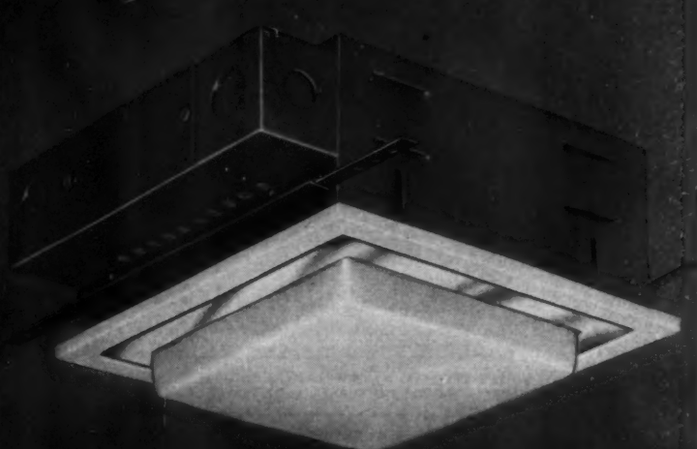

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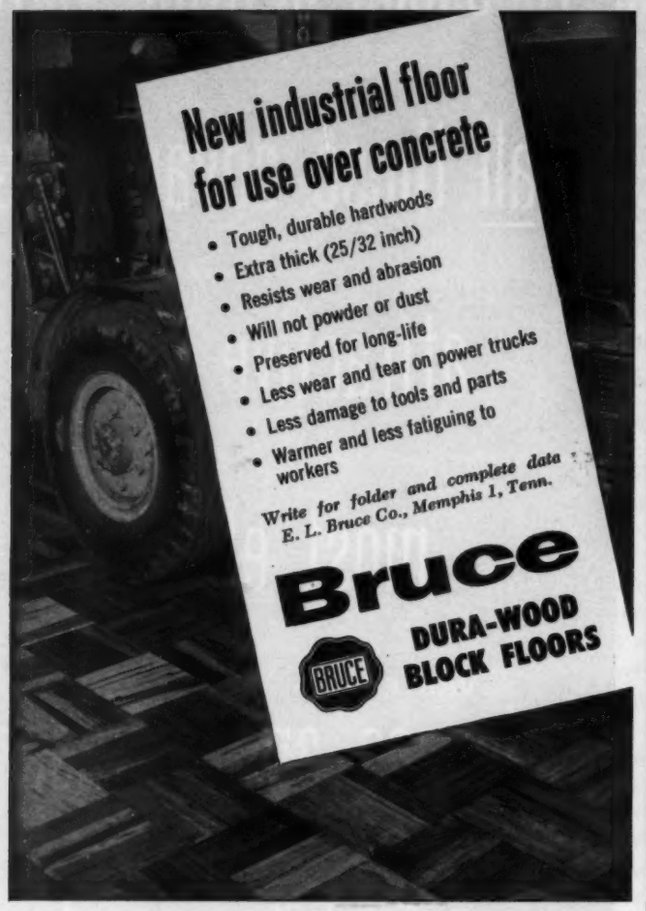
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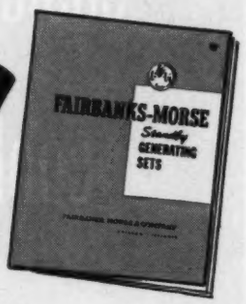

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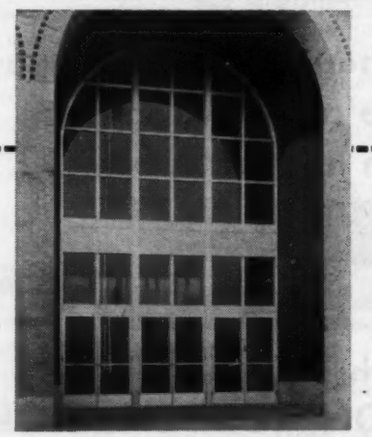

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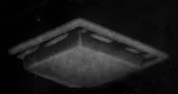

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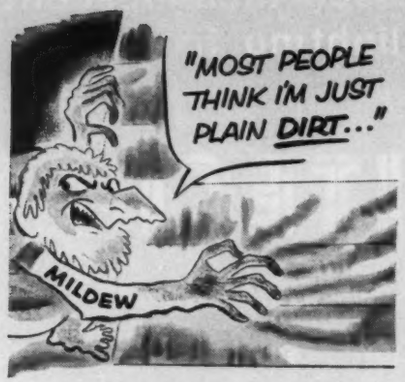

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REQUIRED READING

(*Continued from page 386*)

of the country. Sketches of proposed native housing are shown in these chapters.

The buildings and living customs of the people of each of these territories is described in some detail in French. If one does not read French, however, the illustrations and photographs alone are enough to recommend this splendid volume.

South and Central Africa. Edited by Dore Ogrizek. McGraw-Hill Book Co. Inc. (New York) 1954. 431 pp, illus. $6.50

This volume of *The World in Color* describes the religious, cultural and political life of Africa south of the equator.

ART FROM PERU

The Art of Ancient Peru. By Heinrich U. Doering. Frederick A. Praeger (New York) 1954. 240 pp, illus. $12.50

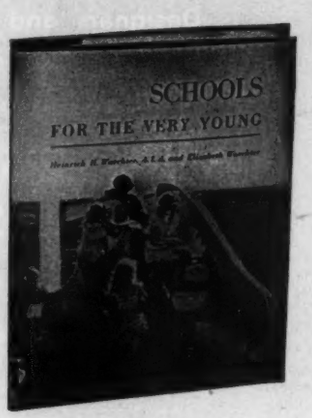
Great stone blocks fitted together with the precision of a Chinese puzzle, designate ancient Peruvian architecture.

Professor Doering, of the Ethnological Museum of Munich, is one of the archaeologists who have unlocked the secrets of the pre-Hispanic cities. These men have recreated from piles of meaningless rubble entangled with jungle the once grand, sculptured and brilliantly painted structures of a lost civilization — piecing together a rich culture from fragments of pottery, scattered jewels and snatches of cloth. In the words of Professor Doering — "At the end of their (the archaeologists) work in the dust and dirt there will reappear — as old paintings re-emerge from dust and turbid varnish — the life and fate of the 'Flower Folk,' a mythical folk . . . whose world was different from ours: without iron but with gold; without wheels and chariots and draught animals but with sedan chairs; a world which may have been

(*Continued on page 394*)

Schools for the Very Young

by **HEINRICH H. WAECHTER, A.I.A.**
and **ELISABETH WAECHTER**



THOUGH many volumes have been written about school design, "Schools for the Very Young" is — so far as we know — the first in which an architect and a child educator have collaborated to provide an up-to-date treatise on the requirements of the particular type of school demanded for the proper training of the very young child.

Beginning with a brief yet adequate historical and philosophical background, in which the development of the theory and practice of child education is discussed, the book goes on to describe the pre-school in action, noting the events of the school day and the corresponding environmental needs of the children and their teachers. Examples of existing pre-schools are presented with critical comment. Detailed information is given concerning the space apportionments and arrangements called for by the activities peculiar to such institutions. Since one of the authors is especially concerned with city planning, the relation of the pre-school to its neighborhood and community is analyzed, and the many different types of pre-schools that have developed to meet special conditions are enumerated and explained.

The outdoor space and its proper equipment are thoroughly covered from the standpoint of a capable architect who has given much thought to the problem. Technological problems of construction, lighting, ventilation, mechanical equipment, etc., are scrutinized in the light of the most recent practice. A wealth of illustrations add both interest and information, and a selective bibliography will aid further study.

208 pages, 7⅛ x 10, stiff binding. Price $6.50.

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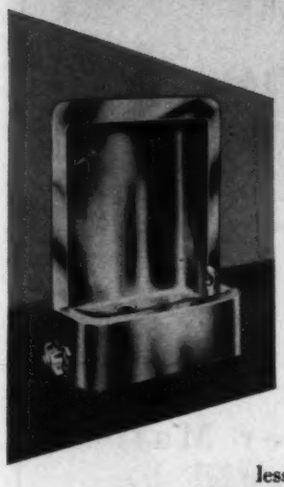

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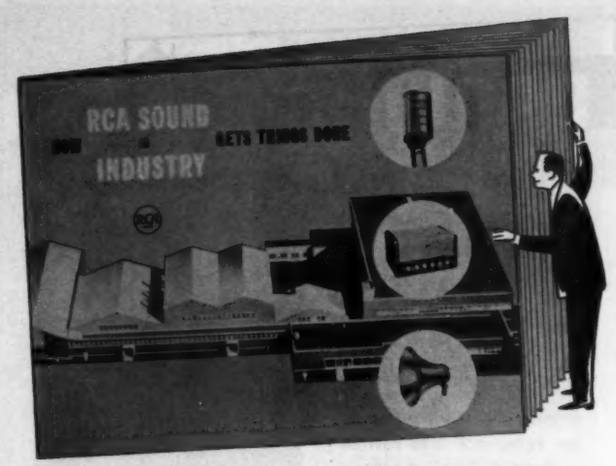

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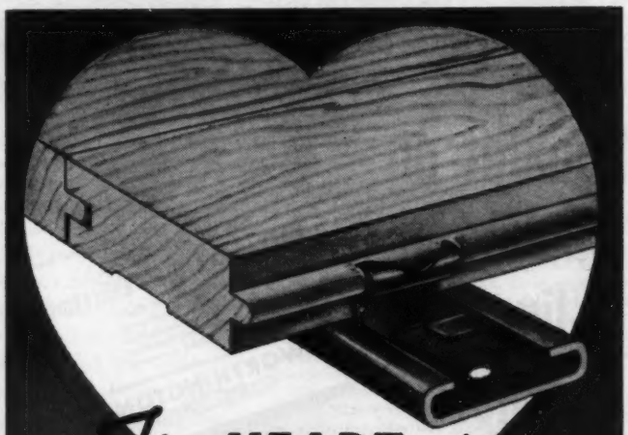

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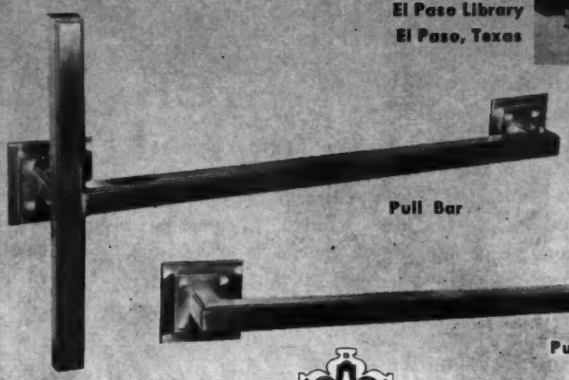

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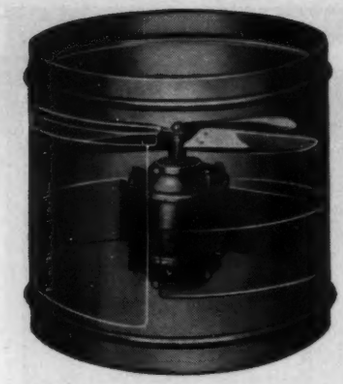

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REQUIRED READING

(Continued from page 390)

like that of the Pharaohs or the rulers of Uruk and Larsa. Had the Summerians of the 3rd millennium B.C. disembarked in front of the Peruvian brick pyramids, they might have understood that world and that world would have understood them. The Spaniards entered these countries as Aladdin with the magic lamp entered the gardens glittering with precious stones: they understood neither the material side nor the spiritual side, and the latter in particular was sealed to them. It is archaeology which unlocks, one by one, the gates into that world of terror and beauty — terror in *our* conception, beauty in *our* conception."

Although it is impossible to visualize an ancient civilization as it actually existed — there is an excitement in visiting a ghost city — still, colorless through weather and time, and as mysterious as a mummy — offering only a tantalizing hint of the people that used to live there.

Professor Doering introduces us well to the ancient civilization of Peru — THE ANCIENT ART OF PERU is illustrated with many superb photographs of structures, cloth, pottery and images.

GOOD DESIGN

Useful Objects Today, Teaching Portfolio Number Four. By Greta Daniel, The Museum of Modern Art (New York) 1954. 55 pp, illus.

The written introduction to this attractive, unbound booklet contrasts the medieval, Renaissance, gay ninety and present day concept of good design. It describes the early fancy for ornate, original pieces — degree designating prestige — followed by the first years of this century, where the machine was first used as a method of inexpensive reproduction. Reflections of many early basic elements are shown to be woven into today's design trends.

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H. E. C.

(Continued on page 398)

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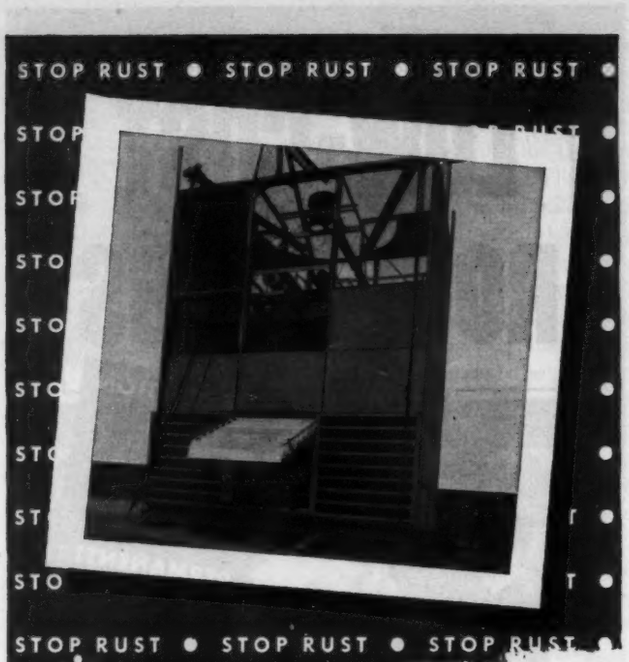

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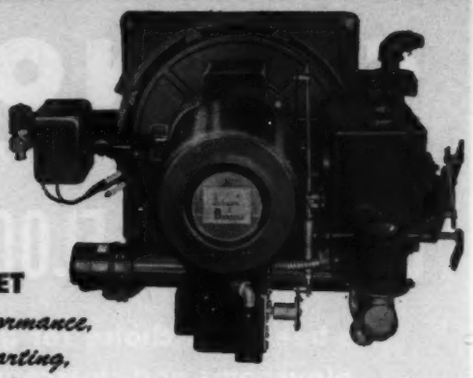

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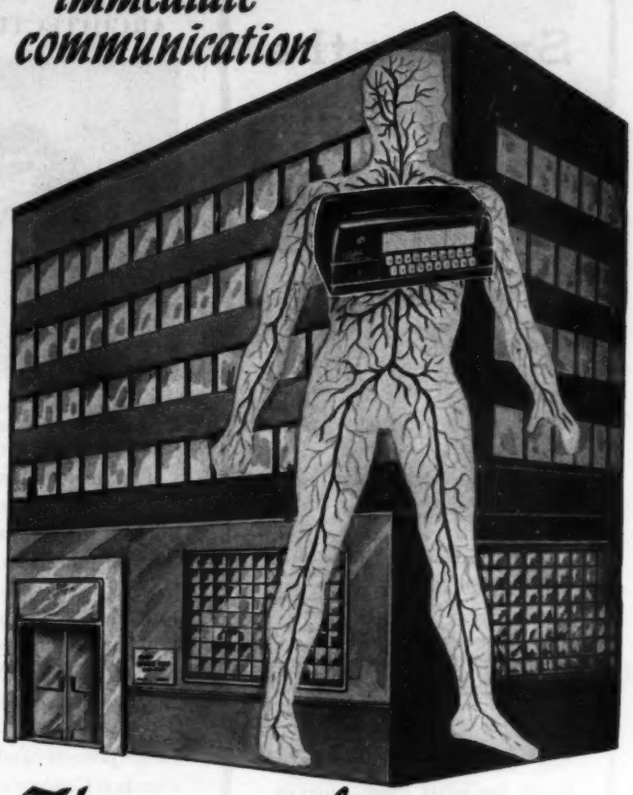

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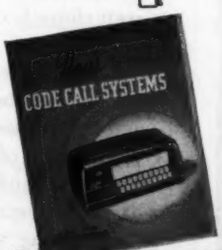

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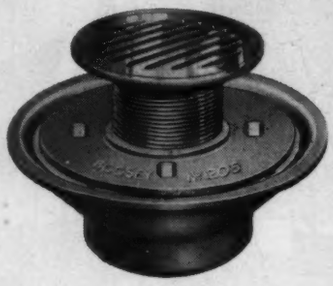

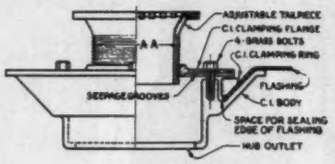

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REQUIRED READING

(Continued from page 394)

ARCHITECTURE IN ISRAEL

Rebuilding the Land of Israel. By Gershon Canaan. Architectural Book Publishing Co., Inc. (New York) 205 pp, illus. $12.50

The ancient land of Israel is, today, the scene of a project that is almost unique in the history of man. The modern inheritors of that once flourishing culture have gone back into the land that has been almost barren of civilization for about two thousand years and are attacking with customary native zeal the task of rebuilding the land.

A book about Israeli architecture, past, present and future has been in Gershon Canaan's "thought and dreams for a long time as a project to be realized some day." His chief concern is that the 20th century builders of Israel not only express the culture of the past and the life of today but that they find building types suitable to the climate and topography of the land.

After giving us a description of the geography, historical background and people of Israel in general terms, the author divides his work into five more detailed chapters representing the five geographic regions — each of which has its own climatic characteristics and history.

The author presents photographs and drawings of important archeological discoveries of the past 20 years, which have revealed much of the pattern of life in ancient Israel and have provided a basis for the 20th-century Israeli architect.

The housing situation in Israeli is a major problem — 100,000 dwelling units are needed immediately. While temporary dwellings are being built to meet the immediate emergency, plans are being made for permanent designs adapted to climate and soil and gracious living. These plans, as well as some photographs of completed projects are presented.

Mr. Canaan has undertaken an admirable task, of large scope, and he has been successful.

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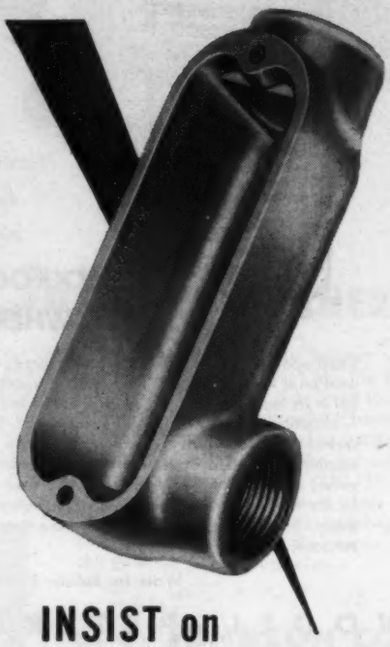

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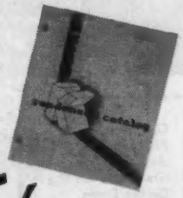

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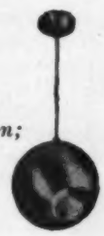

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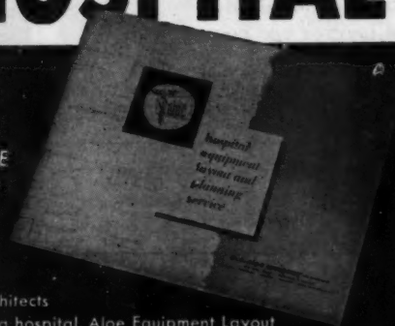

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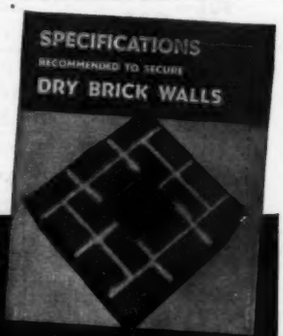

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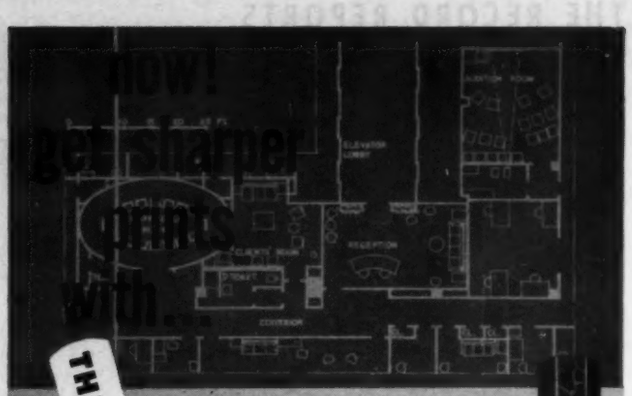

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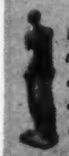

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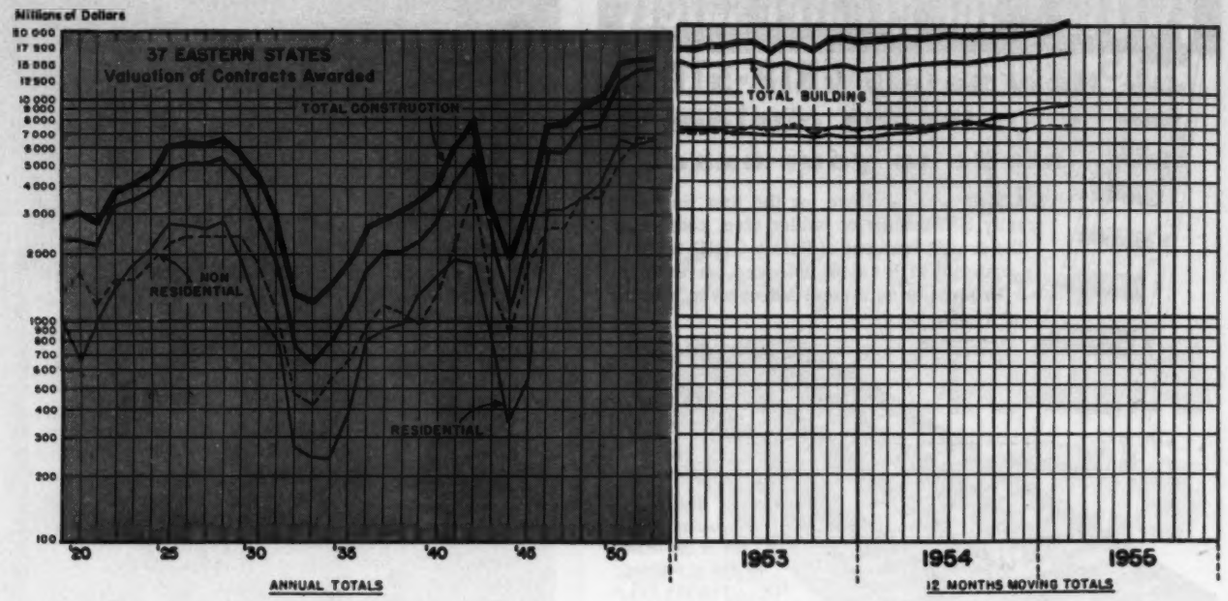


1955 LEADS 1954 BY 30 PER CENT

THE FIRST TWO MONTHS OF 1955 chalked up a record construction total for the first two months of any year, according to F. W. Dodge Corporation tabulations of construction contracts awarded in the 37 states east of the Rockies. The cumulative total of $3,085,593,000 was 30 per cent ahead of the previous first-two-months record set in 1954, and reflected new highs in each of the three basic Dodge categories: nonresidential, at $1,099,251,000 up 17 per cent; residential, at $1,434,457,000 up 48 per cent; heavy engineering, at $551,885,000 up 20 per cent. Of the eight Dodge classifications of nonresidential building, commercial, public, religious, social and recreational, and "miscellaneous nonresidential" all show increases; manufacturing buildings, educational and science buildings, and hospital and institutional buildings show declines of 8.9 per cent, 3.6 per cent, and 2.3 per cent respectively. In the residential classification, hotels, dormitories, one-family dwellings for owner occupancy, one-family dwellings for sale or rent and "other shelter" are all up; apartment buildings declined 29.5 per cent and two-family dwellings 2.4 per cent.

Charts by Dodge Statistical Research Service

Source: F. W. Dodge Corporation

OFFICE BUILDINGS*—SELECTED YEARS

Contracts Awarded—37 Eastern States

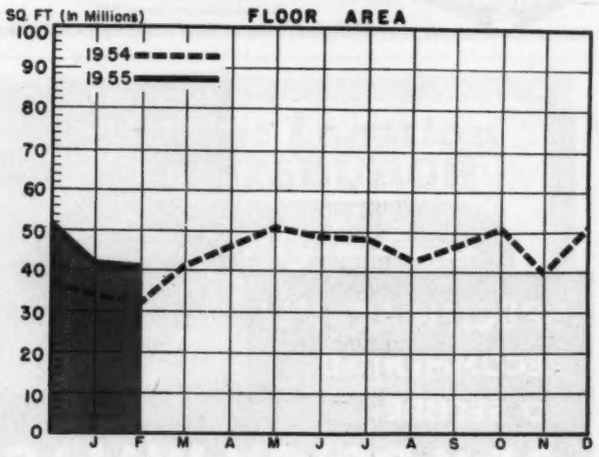
Floor Area (thousands of sq ft)

Year	Annual Total	Monthly Average	Year	Annual Total	Monthly Average
1929	46,106	3,842	1950	29,756	2,480
1935	3,478	290	1951	22,617	1,885
1943	3,256	271	1952	26,662	2,222
1947	20,166	1,680	1953	35,461	2,955
1949	23,260	1,938	1954	41,061	3,422

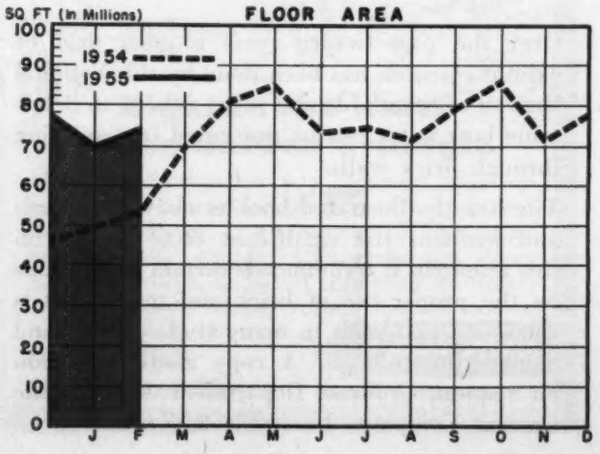
	1954			1955	
Jan.	1981	July	2833	Jan.	4230
Feb.	1527	Aug.	3213	Feb.	2554
Mar.	2095	Sept.	3135	Two-months total—6784	
Apr.	4899	Oct.	4949		
May	4614	Nov.	2761		
June	5016	Dec.	4038		

* Office Buildings are the subject of Building Types Study No. 221, pages 198–224

NONRESIDENTIAL BUILDING (37 EASTERN STATES)



RESIDENTIAL BUILDING (37 EASTERN STATES)



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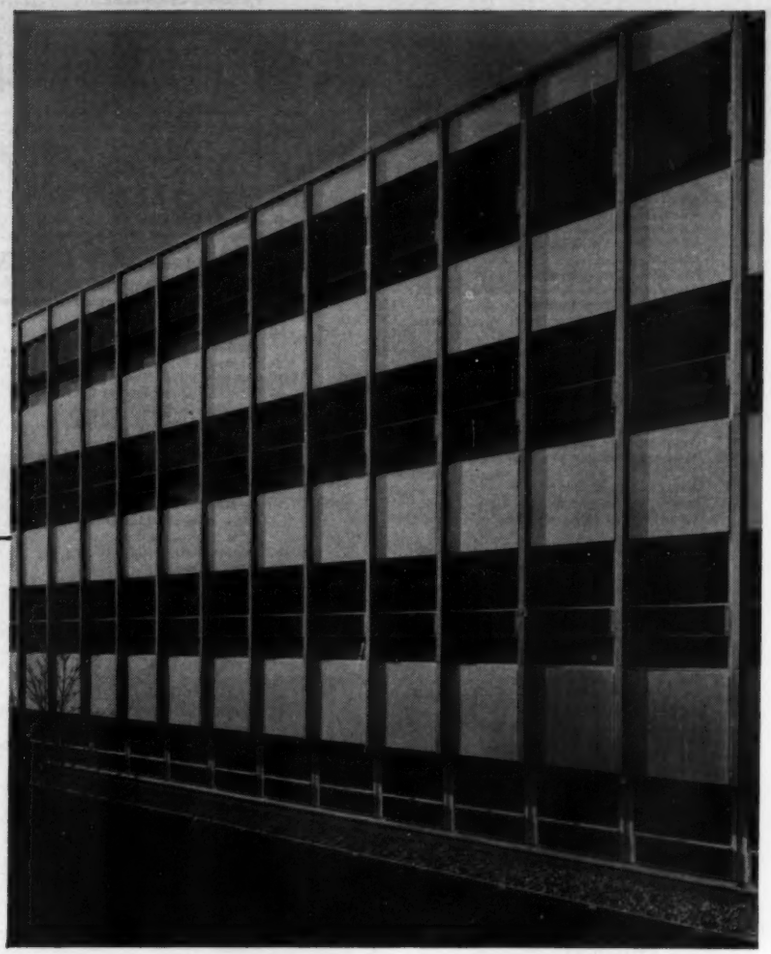

The wall-facing design and workmanship on Donner Hall in Pittsburgh, Pennsylvania, are in keeping with high architectural standards of Carnegie Institute of Technology and those of Pittsburgh architects Mitchell & Ritchey. • Overly *flat* spandrel wall panels of aluminum, a new construction technique, and the absence of flashing make this new dormitory for men a prototype for several other metal-faced buildings to be erected elsewhere. • Collaborating with the architects named, Overly design engineers have reached these objectives: (1) *A unit type wall* with no metal passing through from exterior to interior of the building. This eliminates moisture and frost condensation inside. (2) *A self-flashed wall.* Special design of flanges on spandrels and mullions provides expansion joints that eliminate the necessity of flashing or caulking compounds.
(3) *A building facade* made up of aluminum spandrel sections that present a completely level and flat finished appearance. By unique jigging and manufacturing methods, the spandrel panel surfaces are entirely free from that "pillow look"—bulges or unevenness. • We offer a design service in metal spandrel construction. And we are now fabricating and erecting various designs of formed spandrel panels in both colored and natural finished aluminum, and in stainless steel. *Write us today for details of the Carnegie Tech job.*

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INDEX TO ADVERTISING

	Acme Industries, Inc.	266–267
	Aerofin Corporation	122
	Ainsworth Lighting, Inc.	255
	Air Devices Inc.	72
	Air-O-Therm Application Company, Inc.	388
A-IC-LC	Air Temp Division	154
A	Airtherm Manufacturing Company	349
A-IC	AlanWood Steel Company	298
A	Alberene Stone Corporation	36
A	All-Steel Equipment, Inc.	84
A-IC	Allen Cooler & Ventilator, Inc.	394
A	Allen, W. D. Mfg. Co.	330
	Alliance Mfg. Co.	334
A-IC-LC	Allied Chemical & Dye Corp.	324
	Aloe, A. S. Co.	400
A	Alumiline Corporation	388
A-LC	Aluminum Window Mfrs. Association	400
A-LC	American Biltrite Rubber Co.	302
A-LC	American Brass Company	31
	American Chemical Paint Co.	103
A-LC	American Hardware Corporation	246–247
	American Hot-Dip Galvanizers Association	396
	American Iron & Steel Institute	307
	American Machine & Metals, Inc.	348
A	American-Olean Tile Co.	380
	American Pencil Company	401
	American Radiator & Standard Sanitary Corp.	22–23, 287
	American Steel & Wire Division	145
A-LC	American Telephone & Telegraph Co.	152
A	American Welding and Manufacturing Co.	52
A-LC	Andersen Corporation	308–309
A	Anemostat Corporation of America	237
	Architectural Record	332–333
A	Armco Steel Corporation	315
A-IC-LC	Armstrong Cork Company	27, 158
A	Art Metal Company	260–261
A	Avoncraft Division of Avondale Marine Ways, Inc.	373
	Bakelite Company	83
A-IC	Barber-Colman Company	128–129
A-IC-LC	Barrett Division	324
A-IC	Bayley, William Company	34–35
A	Beckley-Cardy Company	380
A-LC	Bell Telephone System	152
A-IC	Benjamin Electric Mfg. Co.	143, 380
	Benson Manufacturing Co.	153
	Besser Manufacturing Company	238
A-IC	Bethlehem Steel Company	108, 369
A	Bigelow Rugs & Carpets	58
	Bituminous Coal Institute	323
A-IC-LC	Blue Ridge Glass Corp.	73
A	Bogen, David Co., Inc.	374
	Books	368–372–376–384–390–393
A	Boosey, Norman Mfg. Co.	398
A-IC-LC	Borg-Warner Corporation	290–291
A-IC	Bradley Washfountain Co.	310
	Brasco Manufacturing Co.	75
A-LC	Briggs Manufacturing Company	70
A-LC	Bruce, E. L. Co.	388
A	Brunswick-Balke-Collender Co.	357
A	Burson Clip System, Inc.	306
A-IC	Burt Manufacturing Co.	286
A	Byers, A. M. Company	4
A-LC	California Redwood Association	155
A	Cambridge Tile Manufacturing Co.	110
A-IC-LC	Carey, Philip Mfg. Company	100–101–321
	Carpet Institute, Inc.	343
A-IC-LC	Carrier Corporation	345
A	Case, W. A. & Son Mfg. Co.	271
A-IC-LC	Ceco Steel Products Corporation	280–281
A-IC-LC	Celotex Corporation	78
A	Century Lighting, Inc.	399
A	Chase Brass & Copper Co.	133
	Chicago Pump Company	379
A-IC-LC	Chrysler Corporation	154
	Cipco Corporation	393
	Combustioneer Division	381
	Committee on Steel Pipe Research	307
A	Concrete Reinforcing Steel Institute	118
A	Congoleum-Nairn, Inc.	117
A	Connor Engineering Corporation	113
A-LC	Connor Lumber & Land Co.	395
	Consolidated General Products, Inc.	370
A-IC	Cordley & Hayes	267
LC	Crane Co.	316–317
A-IC-LC	Crawford Door Company	254–255
	Crucible Steel Company of America	7
	Cupples Products Corp.	39
A	Curtis Companies Service Bureau	64
A	Curtis Manufacturing Co.	377
A	Cutler Mail Chute Co.	392
A	Davidson Enamel Products, Inc.	43
	Dodge Reports	364
A-LC	Douglas Fir Plywood Assoc.	329, 344
A-IC	Dow Chemical Company	19–337
	Dow Corning Corporation	51
A	Dunham, C. A. Company	335
	DuPont, E. I. de Nemours & Co.	90–91
	Edwards Company, Inc.	250–251
	Electric Storage Battery Company	311
	Electro-Silv-A-King Corporation	322
A	Elkay Mfg. Co.	79
A	Ellison Bronze Co.	282
	Empire Development Corp.	392
A	Equipment Manufacturing Co., Inc.	48
	Evans, George Corporation	80–81
	Faber-Castell, A. W. Pencil Co., Inc.	394
A	Fairbanks-Morse	388
A	Fairhurst, John T. Co., Inc.	356
A	Farr Company	366
	Federal Seaboard Terra Cotta Corporation	107
A	Fiat Metal Mfg. Company	28–29
	Filon Plastics Corporation	270
A-IC	Filtrine Manufacturing Company	391
A	Fleet of America, Inc.	294
	Flexonics Corporation	387
A-IC-LC	Flintkote Company	150
A	Flynn, Michael Manufacturing Co.	21
	Gates & Sons, Inc.	397
	General Aniline & Film Corp.	131
A-IC	General Electric Co., Air Conditioning Dept.	156
A-IC	General Electric Co., Apparatus	53
A-IC	General Electric Co., Wiring	325
A	Getty, H. S. & Co., Inc.	106
	Gibson Manufacturing Co.	25
	Globe Company	401
A	Goodrich, B. F. Co., Flooring Dept.	66
A-IC	Granco Steel Products	244–245
A-IC	Granite City Steel Co.	244–245
A-IC-LC	Great Lakes Carbon Corporation	361
A-IC	Great Lakes Steel Corp.	97
A-IC	Grinnell Company	2nd Cover
A	Haertel & Co., W. J.	242
	Hager, C & Sons Hinge Manufacturing Co.	62
LC	Halstead & Mitchell	358
	Hamilton Manufacturing Company	274–275
A	Hansson, Elof Inc.	14
A-IC	Hauserman, E. F. Company	8
A	Haws Drinking Faucet Co.	38
A	Hoffman Specialty Mfg. Corp.	119
A	Holcomb & Hoke Manufacturing Co., Inc.	276–277
	Holophane Company, Inc.	283
A	Horn, A. C. Co., Inc.	144
	Hotel Pittsburgher	400
A-IC	Ilg Electric Ventilating Co.	87
A	Imperial Brass Manufacturing	2–3
	Infra Insulation, Inc.	13
A-IC-LC	Inland Steel Products Company	406
A	Insulite Division	248–249
	International Nickel Company, Inc.	82
A-IC	International Steel Company	338
A-LC	Jackson & Church Co.	3rd Cover
A	Jamison Cold Storage Door Co.	151
A	Jenn-Air Products Company, Inc.	132
A-IC	Johns-Manville	142
	Johnson, S. T. Co.	396
	Johnson Service Co.	99
A-IC-LC	Jones & Laughlin Steel Corporation	89
A-IC	Josam Manufacturing Company	240
A-IC	Kaiser Aluminum & Chemical Sales, Inc.	304–305
A	Kawneer	60–61
	Kayline Company	353
A-IC-LC	Keasbey & Mattison	63
A	Kennecott Copper Corp.	44–45
A-LC	Kentile, Inc.	383
A-IC-LC	Keystone Steel & Wire Company	68–69
	Killark Electric Manufacturing Co.	398
A-IC	Kimble Glass Co.	94–95
	Kinetic Chemicals Division	90–91
A-IC-LC	Kinnear Mfg. Company	318
	Kohler Co.	320
A	Koppers Company, Inc.	85
A	LCN Closers, Inc.	262–263
	Laclede Steel Company	130
	Lawler Automatic Controls, Inc.	54
	Lehigh Portland Cement Co.	157
A-IC	Lewis Asphalt Engineering Corp.	346
A-IC-LC	Libbey-Owens-Ford Glass Co.	73, 300–301
	Lincoln Electric Company	319
A	Litecraft Manufacturing Corp.	387–389
A-LC	Louisville Cement Co.	401
A	Lowell Manufacturing Co.	96
A	Loxit Systems, Inc.	392
A-IC	Macomber, Inc.	138
A-IC	Mahon, R. C. Company	47
A	Marble Institute of America	92
A-LC	Marsh Wall Products, Inc.	405
A	Mastic Tile Corporation of America	120
A	Matot, D. A., Inc.	389
A	McKee Door Company	399
A	Medart, Fred Products, Inc.	67
A-IC	Mills Company	1
A	Minneapolis-Honeywell	40–41
A-IC	Minnesota Mining & Manufacturing Co.	115
A	Minnesota and Ontario Paper Company	248–249
A-IC-LC	Mississippi Glass Company	112
A	Morrison Steel Products, Inc.	342
A	Mo-Sai Associates	30
A-LC	Mueller Brass Co.	127
A	Multi-Clean Products, Inc.	32
	National Coal Assn.	323
A-IC-LC	National Gypsum Company	149–371
A-IC-LC	National Steel Corporation	97
A	National Terrazzo & Mosaic Association, Inc.	314
A	Nee-Ray Products, Inc.	339
	Nesbitt, John J., Inc.	104–105
A	New Castle Products, Inc.	88
A-IC	Norton Company	278
A	Norton Door Closer Company	114
	Nuodex Products, Inc.	390
	Oregon Brass Works	389
A-IC-LC	Overhead Door Corporation	59
A	Overly Manufacturing Company	403
A-IC-LC	Owens Corning Fiberglas Corporation	109
A-IC	Owens-Illinois Kimble Glass Co. Subsidiary	94–95
	Ozalid Division	131
A	Penn Metal Company, Inc.	116
A-IC	Penn Ventilator Company	146
	Perlectite Company	400
IC-A-LC	Perlite Division	361
A-IC	Perlite Institute	378
IC	Permaglas Division	55–65–385
A-LC	Pittsburgh Plate Glass Company	252–253
A	Pittsburgh Plate Glass Company, Paint Div.	299
A-LC	Pittsburgh Steel Products Company	396
A	Powers Regulator Co.	33, 256–257
A	Pyle-National Company	295
	RLM Standards Institute	395
A	Radio Corporation of America	391
IC-A-LC	Raynor Manufacturing Co.	148
A	Recreation Equipment Corp.	392
A-IC-LC	Reflectal Corporation	290–291
A	Republic Steel Corporation	268–269
A-IC-LC	Revere Copper & Brass, Inc.	140–141
A-LC	Reynolds Metals Company	296–297
A	Richkraft Co.	370
	Richmond Radiator Company, Inc.	367
	Rigidized Metals Corporation	374
A	Rilco Laminated Products, Inc.	354
A	Rixson, Oscar C. Company	86
A-IC	Robertson, H. H. Company	258–259
A-LC	Roddis Plywood Corporation	49–50
	Roebling, John A. Sons Corp.	147
A	Rohm & Haas Company	123
	Roller-Smith Corporation	124
	Rolscreen Company	56–57
A-LC	Rowe Manufacturing Co.	303
A-LC	Russell & Erwin Division	246–247
A-LC	Russell, F. C. Company	126
A-IC	Rust-Oleum Corporation	121
A-IC	Sanymetal Products Company, Inc.	37
	Sargent & Greenleaf, Inc.	98
A	Schacht Associates, Inc.	327
A	Schlage Lock Company	360
A	Seaporcel Metals, Inc.	347
A	Sedgwick Machine Works	386
	Shwayder Bros., Inc.	264–265
	Signal Engineering & Mfg. Co.	397
	Silvray Associated Company	355
	Skylike Lighting, Inc.	355
A-IC	Sloan Valve Company	4th Cover
IC	Smith, A. O. Corporation	55–65–385
A	Smithcraft Lighting Div.	279
	Southern Equipment Company	74
A-LC	Southern Sash Sales & Supply Co.	71
A	Speakman Company	363
	Sperti-Faraday, Inc.	378
	Square D Company	134–135
A-IC	Stark Ceramics, Inc.	139
	Steel Products Engineering Company	381
A	Steelcraft Manufacturing Co.	380
	Stem, Chester B., Inc.	331
A-LC	Sterling Hardware Mfg. Co.	146
A-IC	Stran-Steel Div.	97
A	Sun Chemical Corp.	144
A-IC	Sylvania Electric Products, Inc.	292–293
A-IC	Tectum Division	334
A-IC-LC	Tile Tex Division	150
	Timber Engineering Company	386
A	Timber Structures, Inc.	359
A	Timbertone Decorative Co., Inc.	366
A	Titus Manufacturing Corporation	137
	Troy Laundry Machinery Division	348
A-IC-LC	Truscon Steel Division	268–269
A	Tuttle & Bailey, Inc.	76–77
A-LC	Ualco Aluminum Windows	71
A-IC-LC	Union Asbestos & Rubber Company	93
	Union Carbide & Carbon Corp.	83
	United States Ceramic Tile Company	350
A-IC	United States Gypsum	312–313
A-LC	United States Plywood Corp.	284–285
IC	U. S. S. Stainless Steel	341
IC	United States Steel Co. Subsidiaries	145–341–365
A	United Steel Fabricators Incorporated	111
A	Universal Atlas Cement Company	365
A-IC	Upco Company	399
A	Van Range, John Co.	352
A	Versen, Kurt Company	382
A	Virginia Metal Products, Inc.	288–289
A	Vogel-Peterson Co.	397
	Vogt, Henry Machine Co.	387
A	Vonnegut Hardware Co.	375
	Wallace, William Company	148
A-LC	Ware Laboratories, Inc.	351
A	Wasco Products, Inc.	102
A	Weis, Henry Manufacturing Co., Inc.	326
	Westinghouse Electric Corp., Electric Appliance Division	125, 272–273
	Whizzer Products Co.	251
	Wiley, John & Sons, Inc.	382
	Wiremold Company	340
A	Wood-Metal Industries, Inc.	362
A	Worthington Corporation	391
A	Wright Mfg. Co.	336
	Yale & Towne Mfg. Co.	136
A-IC	York Corporation	328
A-IC-LC	Zonolite Company	395
A-IC	Zurn, J. A. Mfg. Co.	287

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